# NORWOOD'S *Epitomie*:

BEING THE

# APPLICATION

OF

# The Doctrine of TRIANGLES

In certain *Problemes*, concerning the use of the Plain *Sea-Chart*, and *Mercators* Chart.

Being the two most usual kinds of *Sailing*:

## With a Table of Artificial *Sines*;

*Tangents*, and the *Complements Arithmetical* of *Sines* supplying the use of *Secants*.

To *Radius* 10, 00000, and to every degree and minute of the Quadrant.

ALSO

A *Chiliad*, or the *Logarithmes* of absolute Numbers, from a Unite to 1000, with a Table of the Right Ascension and Declination of the Sun: and certain principal Stars that are most in use.

Whereunto is added the farther use of the fore-named Tables in Questions that concern *Navigation*, *Astronomie* and *Geographie*.

*By* Richard Norwood, *Reader of the* MATHEMATICKS.

LONDON,
Printed by *R.* and *W. Leybourn* for *G. Hurlock*, and are to be sold at his shop at *Magnus* Church-corner. 1653.

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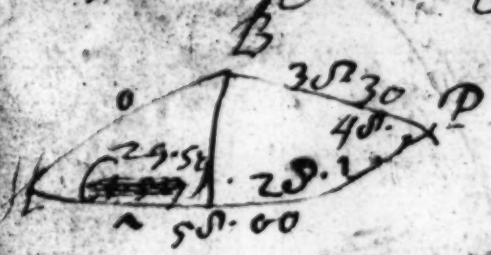

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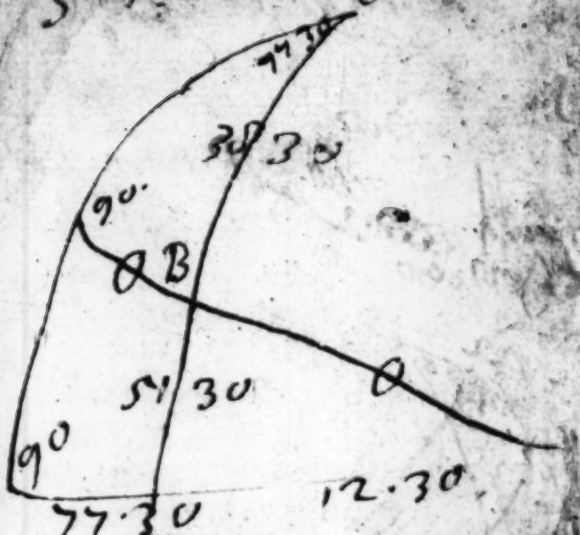


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# NORWOODS *Epitomie*,

## *Being the Application of the Doctrine of Triangles, in the two principal kinds of Sayling.*

MY intent was here to have annexed a Treatise of Navigation, and especially of such Points therein, as have reference to the whole *Doctrine of plain and Spherical Triangles*; But I have here shewed the resolution of all useful Problemes, touching the two principal kindes of Sayling by right-lined Triangles.

### *Questions of Sayling by the plain or ordinary Sea-Chart.*

Although the ground of the Projection of the ordinary Sea-Chart being false, (as supposing the Earth and Sea to be a plain Superficies) and so the conclusions thence derived must also for the most part be erroneous; yet because it is most easie, and much used, and the errours in small distances not so evident, we will not wholly neglect it.

### Quest. 1.

*Sayling* 100 *leagues upon the sixth Rumbe; how much shall I alter my Parallel or Latitude?*

*Note.* The angle that any Point of the Compasse makes with the Meridian, we call the Rumbe: but the angle that it makes with any Parallel, we call the complement of the Rumb.

And forasmuch as to every point of the Compasse there answers 11 deg. 15 min. therefore the sixth Rumb from the Meridian (namely, *Ene*, *Ese*, *wsw*, or *wnw*) makes an an-

gle therewith of 67 deg. 36 min. whose complement 22 deg. 30 min. is the angle of the same Rumb with every Parallel.

Now admit I sail from *D* to *A*, East North-east 100 leagues, I demand the difference of Latitude B D.

*By the third Case of plain Triangles.*

| As Radius. | | |
|---|---|---|
| To the distance run, | *A D* 100 leagues. | 2, 00000 |
| So sine complem. the Rumb, | *s A* 22 deg. 30 min. | 9, 58284 |
| To the difference of Latitude, | *D B* 38 $\frac{2}{10}$ leagues. | 1, 58284 |

In like manner you may finde the difference of Latitude, for any distance run upon any other point of the Compasse.

2 *Sailing* 100 *leagues upon the sixth Rumb: how far am I departed from the Meridian of the place from which I came.*

That is by the same things given as before, I demand A B.

*By the third Case of plain Triangles.*

| As Radius | | |
|---|---|---|
| To the distance run, | *A D*, 100 legues, | 2, 00000 |
| So is the sine of the Rumb, | *s D* 67 deg. 30 min. | 9, 96562 |
| To the departure from the Merid. | *A B*. 92 $\frac{4}{10}$ leagues, | 1, 96562 |

3 *Sailing upon the sixth Rumb till I alter my Latitude one degree, I demand how far I have sailed?*

As sailing from *D* to *A*, East Northeast, till the difference of Latitude D B be 10 leagues, I demand the distance run *A D*.

Say

*Say by the second Case of plain Triangles.*

As sine complement the rumb, *s* A 22 d. 30 min. *co. ar.* 0,41716
To the difference of Latitude D B 20 leagues, 1,30103

So is Radius
To the distance run A D 52 $\frac{3}{10}$ leagues 1,71819

The like question might be moved by the departure from the Meridian given.

4. *Sailing upon the sixth Rumb, till I have altered my Latitude one degree: how much am I departed from my first Meridian?*

As sailing from D to A, East North-east, till the difference of Latitude D B be 20 leagues, I demand A B, my departure from the Meridian, (as for example in the former type?)

*By the first Case of plain Triangles.*

As Radius
To the difference of Latitude, D B 20 leagues, 1,30103
So is the tangent of the rumb, *t* D 67 deg. 30 min. 10,38278
To the departure from the Merid. A B 38 $\frac{3}{10}$ leag. 1,68381

In like manner by the departure from the Meridian given, you might finde the difference of Latitude.

5. *Sailing upon some Rumb, between the North and the East* 52 $\frac{3}{10}$ *leagues, and finding that I have altered my Latitude one degree: I demand upon what point I have sailed?*

As if I sail from D to A, (being some Rumb between the East and North) 52 $\frac{3}{10}$ leagues; and then finde the difference of Latitude D B, to be 20 leagues; I demand the angle A D B.

*Say by the sixth Case.*

As the distance run, D A 52 $\frac{3}{10}$ leagues, *co. ar.* 8,28191
Is to Radius,

So is the difference of Latitude D B 2 leagues, 9,30103

To sine complement the Rumb, 1 *A*, 22 deg. 30 min, 9,58294

Whose complement *D*, 67 deg. 30 min. is the sixth Point from the Meridian, namely, East Northeast. Here we neglect some part of a minute (as in these things not to be regarded) and so in other places.

6. *Sayling upon some Rumb between the North and the East* 52¼ *leagues, and finding that I have altered my Latitude one degree: I would know my departure from my first Meridian?*

*By the seventh Case.*

To the distance run, adde the difference of Latitude, and also substract it from the same, noting the Sum and Remainder. Then adde together the Logarithmes of this Sum and Remainder, and half that Total is the Logarithme of the distance from the first Meridian.

| | | |
|---|---|---|
| Distance run *D A*, 52 1/10 leag. } Summe 72 1/10 leag. | 1,85884 | |
| Differ. of latid. *D B*, 20 leag. } Remain. 32 1/10 leag. | 1,50853 | |
| | 3,36737 | |
| Departure from the Meridian *A B*, 48 3/10 leagues. | 1,68368 | |

The same may be otherwise found by the same case.

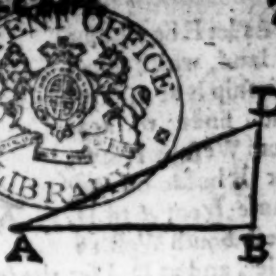
And in like sort might the difference of Latitude be found, the departure from the Meridian being known.

7. *The distance of the Meridians of two places, and the difference of the Latitudes of the same places being given: to finde the Rumb and distance?*

As let *A* represent the Lizard in the west part of England, and *A B* the Parallel thereof, and let *D* represent St. *Maries* Island being one of the *Azores*, *D B*, the Meridian thereof.

Then

Then is A B the distance of the Lizard, from the Meridian of St. *Maries*, which let be 222 leagues; and A B, the distance of their parallels, or difference of their latitudes 256 leagues, I demand the rumbe, namely, the angle at D, and the distance in the rumbe A D.

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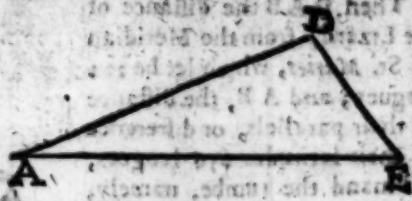
*First, for the rumbe, say by the fourth case.*

As the difference of Latitude D B 256 leagues, *co.ar.* 7,59176
Is in proportion to Radius:
So is the distance of the meridian A B, 272 leagues, 2,43457
To the tangent of the rumbe D, 46 deg. 44 min. 10,02633
Which is the fourth Rumbe from the meridian, and 1 deg. 44 min. more; which shews the course from St. *Maries* to the Lizard, to be Northeast, 1 deg. 44 min. Easterly: or from the Lizard to St. *Maries* Southwest, 1 deg. 44 min. Westerly. And thus it should be by the plain Chart.

*Secondly, for the distance* A D; *say by the 2 case.*

As the sine of the rumbe, 5 D 46 deg. 44. min. *co. ar.* 0,13776
To the distance of the meridians *A B*, 272 leagues, 2,43457
So is the Radius
To the distance of the places *A D*, 373½ leagues, 2,57233
And such should be the distance by the plain Chart.

8. *Sayling away* W S W, *I see a point of Land, which I set, and finde to bear from me West by North, and having sayled six leagues further, I finde it bears from me Northwest by West: I would know how far it is distant.*




As let E be a point of land, which when the ship is at A, I set and finde to bear from West by North, but I hold on my course from *A* to D, West South West 18 miles, and at D, I set the same point of Land again, and finde it to bear from me North-west by West: I demand the distance thereof D E, that is, how far it was from me in my last observation?

First, I consider between A E, the West by North, and A D the West South-west, is three Points of the Compasse, that is, 33 deg. 45 min. which is the angle at A: also between E A, the East by South, and E D the South-east by East are two Points, that is, 22 deg. 30 min.

*Therefore by the 8th Case of plain triangles.*

As sine the angle at the point seen, s E 22 d. 30 m *co.ar.* 0,4176
Is to the distance run, A D 18 miles, 1,25527
So sine the angle at the first place of observation, s A 33 deg. 45 min. 9,74474
To the distance of the point seen, E D 28 $\frac{1}{12}$ miles, 1,41774

Whereby it appears, that the distance of the point seen from the place of your last observation is 26 miles, and a furlong. In like manner you may find the distance thereof from the place of your first observation A.

*Admit the course from the* Lizard *to St.* Maries *be* S W *the distance* 37 $\frac{1}{3}$ *leagues. A certain ship bound from the* Lizard *to St.* Maries, *steers away* S S W, *and afterwards* W *by* S, *and so sometimes upon one of these points, sometimes upon the other, till she arrives at St.* Maries, *now I demand how many leagues she hath sailed upon one of these points, and how many upon the other.*

Let

Let A be the Lizard, E. St. *Maries*, and ſeeing *s s w*, being om South-weſt two points, makes an angle therewith of 22 g. 30 min. which let be A; alſo weſt by ſouth makes with *s w* angle of 33 deg. 45 min. which let be E, alſo South *s w*, akes with weſt by ſouth an angle of 56 deg. 15 min. which let the the complement of D to 180 degrees.

*Therefore by the 8 Caſe.*

| | | |
|---|---|---|
| s the ſine of | D, 56 deg. 15 min. *com. ar.* | 0, 08015 |
| o the diſtance given | A E, 373 $\frac{1}{3}$ leagues. | 2, 55113 |
| is the ſine of | E, 33 deg. 45 min. | 7, 74474 |
| o | A D, 248 $\frac{8}{10}$ leagues. | 2, 39602 |

Which is the diſtance run upon the Weſt by South-points.

*Again,*

| | | |
|---|---|---|
| s the ſine of | D, 56 deg. 15 min. *com. ar.* | 0,08015 |
| o the diſtance given | A E, 373 $\frac{1}{3}$ leagues | 2,57113 |
| is the ſine of | A, 2 deg. 30 min. | 0,58284 |
| o the way run | E D, 171 $\frac{4}{100}$ leagues, | 2,25412 |

Whith is the diſtance run upon the Weſt by South Points.

9. *A Merchant-man, being in the Latitude of* 43 *degrees, fals into the hands of Pirats, who amongſt other things takes away his Sea-compaſſe. But when he is gotten clear, he ſails away as directly as he can, and after two dayes meets with a Man of War, who alſo had been the day before in the Latitude of* 43 *deg. and had ſailed thence* S E *by* S 37 *leagues: He deſirous to finde thoſe Pirats, the Merchant-man tels them, he left them lying to and fro where they took him, and he had ſailed ſince at leaſt* 64 *leagues, between the South and Weſt: what courſe ſhall the Man of War ſhape to finde theſe Pirats?*

Let

Let A E be the Parallel of 43 deg. D the place where the ships meet: then is there given A D 64 leagues, E G 37 leagues, and the angle D E A five points of 56 deg. 15 min.

*Therefore, by the 9 Case of plain triangles,*

| | | |
|---|---|---|
| As the distance runne by the Merchant man, | A D, 64 leagues, *to. ar.* | 8, 19381 |
| To fine the angle given, | E, 56 deg. 15 min. | 9, 91985 |
| So is the distance runne by the man of War | E D, 37 leagues, | 1, 56810 |
| To fine an angle required, | A, 28 deg. 44. | 9, 68187 |

That is West Southwest, 6 deg. 14 min. southerly, and so hath the Merchant sailed; therefore to return to the same place he must shape his course East Northeast, 6 deg. 14 min. Northerly.

11. *There are two Ports lying* N E, *and* N W, *one of another, a ship sails from the westermost of these Ports East Southeast 47 leagues, another departing from the Eastermost Port sails 66 leagues, and they meets with the former, what course hath this second ship kept, and how far are these Ports asunder?*

Let the Northeast Port be A, the Southeast E, and the place where these ships meet at D. And forasmuch as from E to A the course is Northeast, and from E to D East Southeast, therefore the angle at E, 67 deg. 30 min. and the side E D, 47 leagues, and A D 66 leagues.

There

*Therefore by the 9 case of plain triangles.*

| | | |
|---|---|---|
| A D, 66 leagues, *co. ar.* | 8, 18046 | And seeing from A to E, the course is south-west, and from A to D 41 d. 08 m. more southerly; therefore the course from A to D, is South 3 deg. 52 min. Westerly. |
| o sine E, 67 deg. 30 min. | 9, 96561 | |
| o E D, 47 leagues, | 1, 67210 | |
| o sine A, 41 deg. 08 min. | 9, 81817 | |

Secondly, for the distance of these Ports A E, the angle at , being 41 deg. 08 min. and the angle at E, 67 deg. 30 min, e Sum of them both is 108 deg. 38 min. which subtracted om 180 deg. leaves the angle at D, 71 deg. 22 min.

*Therefore by the 8 case of plain triangles.*

| | | |
|---|---|---|
| s sine E, 67 deg. 30 min. *co. ar.* | 0, 03439 | So that the distance betweene the two Ports is 67 $\frac{7}{10}$ leagues. |
| o A D, 66 leagues, | 1, 81954 | |
| o sine D, 71 deg. 22. min. | 9, 97682 | |
| o A E, 67 $\frac{7}{10}$ leagues, | 1, 83091 | |

Some may think it requisite, that the latter part of this Proeme should have been a distinct case in plain Triangles; but ecause the same things are here given as in the 9 Case, and e operation manifest by the Eighth & Ninth, I thought it not ecessary to make another Case of it.

2. *Coasting along towards the evening, I have sight of a Cape or Headland, beyond which I desire to steer in, the next morning it bears from me* SSE, *and is distant by estimation* 11 *leagues, but I steer away South, till two of the clock in the morning about* 12 *leagues; and then would know how the Cape bears from me, and how far it is off?*

As admit A, I observe the Cape D to bear from the South outheast 11 leagues; but I steer away South, to E 12 leagues. have then A D 11 leagues, A E 12 leagues, the angle at A 3 deg. 30 min, (as for example) in the fore-going type.

First,

*First, then for the angle at* E *by the* 10 *Case.*

| | |
|---|---|
| *A E + A D* 23 leagues, *com. ar.* | 8,6381 |
| To *A E* —— *A D*, 01 league, | |
| So $t\frac{1}{2}$ E + *D*) *t* 78 deg. 45. min. | 10,7013 |
| To tang. an angle F, 12 deg. 20 min. | 9,3396 |
| Which subtracted there remains } E, 66 deg. 25 min. | |

In working this example: becauſe the angle given *A*, is 2 deg. 30 min. therefore the other two E and *D*, are 150 deg. 30 min. (by the firſt Lemma of the third Chapter of plain triangles) the half whereof is 78 deg, 45 min. Whereby we find an angle F, 12 deg. 20 min. which ſubtracted from 78 deg. 45 min. there remains the angle at E, 66 deg. 25 min. Wherefore ſeeing E *A* is a North line, E D is almoſt Eaſt North-eaſt, namely, Eaſt North-eaſt 1 deg. 5 min. Northerly.

*2ly, for the diſtance of the Cape* E D, *by the* 8 *Case.*

| | |
|---|---|
| As ſine the angle found, *t* E 66 d. 25 m. *co. ar.* | 9,0378 |
| To the diſtance in the evening; *A D* 11 leagues; | 1,0413 |
| So the ſine of the angle given, *s A* 22 d. 30 min, | 9,5021 |
| To the diſtance in the morning, *E D* $4\frac{6}{10}$ leagues, | 0662[illegible] |

That is above 4 leagues and a half diſtant.

13. *Admit I ſail away from a certain port* S. S. W. 50 *leagues, and thence again* W. *by* S. 30 *leagues, upon what point have I made my way good, and how far am I come from a port?*

As admit I ſail from *A* to *D* South Southweſt 50 leagues, and from *D* to E, Weſt by South 30 leagues, there is required the courſe *A*, or E, and *A* E.

From the South Southweſt to the Weſt by South, are 5 points, that is 56 deg. 15 min. which is the complement of the angle at *D*, to 180 deg. So that the angle at *D* is 123 deg. 45 min. Wherefore here are given the two ſides *A D* and E *D*, and their contained angle at *D*; Therefore ——

| | | |
|---|---|---|
| A D + E D, 80 leagues, | 60. ar. | 8, 09691 |
| A D —— 20 leagues, | | 1, 30103 |
| ½ (A + E) t 28 deg. 08 min. | | 9, 72810 |
| t F, 07 deg. 37 min. | | 9, 12004 |

Which ſubtracted } A 20 deg. 31 min.
There remains }

Wherefore ſeeing the courſe from *A* to *D*, is ſouth ſouthweſt, the courſe from *A* to E, is 20 deg. 31 min. more weſterly than ſouthweſt, 2 deg. ſoutherly; ſo that I have made my way good ſouthweſt two deg. ſoutherly.

*Secondly, for the diſtance upon that Point.*

| | | |
|---|---|---|
| As the ſine he angle found, s *A* 20 deg. 31 min. | 60. ar. | 0, 45534 |
| So his oppoſite ſide given, E D, 30 leagues, | | 1, 47712 |
| So the ſine the angle given, s D, 56 deg. 15 min. | | 9, 91985 |
| So his oppoſite ſide required, *A* E, 71 $\frac{1}{10}$ leagues, | | 1, 85231 |

Which is the diſtance from that Port.

3. *There are two Ports in one and the ſame Parallel, or Latitude, diſtant 64 leagues, and there is a certain Iſland more ſoutherly, diſtant from the Eaſtermoſt of theſe ports 47 leagues, and from the Weſtermoſt of them 34 leagues: I demand the courſe from the Eaſtermoſt port to that Iſland?*

Let the Eaſtermoſt port be *A*, the Weſtermoſt E, both in one and the ſame Parallel A E, diſtant 64 leagues, and let the Iſland be *D*, diſtant from *A*, 47 leagues, and from E 34 leagues; there is required, the courſe from *A* to *D*, that is, the angle at *A*, or the complement thereof.

By

*By the 12 case of plain Triangles.*

| | | |
|---|---|---|
| As the distance of the parts A E, 64 leagues. | *co. ar.* | 8,193 |
| To the sum of A D, and E D, 81 leagues, | | 1,908 |
| So is the difference of A D, and E D, 13 leagues, | | 1,113 |
| To a certain line | A, $16\frac{454}{1000}$ | 1,214 |
| which added to A E, is | $80\frac{454}{1000}$ | |
| The half whereof is | A B, $40\frac{227}{1000}$ | |

*Then by the 6 case of plain Triangles.*

| | | |
|---|---|---|
| As A D 47 leagues, | *compl. arith.* | 8,327 |
| To Radius; | | |
| So A B, $40\frac{227}{1000}$ | | 1,604 |
| To *c* A, 5 58 deg. 51 min. | | 9,931 |

That is southwest and by west 2 deg. 36 min. westerly, wh is the course from the Eastermost port to the Island.

15. *A ship sails from one Port to a second* S S E *leagues, and from thence to a third 54 leagues, from that third to the first 85 leagues: I demand course from the second Port to the third, and fr the third to the first?*

This and the like are to be wrought as the former, wh therefore we leave to your own practice.

# *Of Sayling by* Mercators *Char*

And thus much of the plain Chart, which as it hath commodity, that it is most easie; so it hath some disc modity intolerable. For there be very few places that therein be expressed, according to the true Situation and stance one from another. Which as it is a great impedime the practice of Navigation; so it hath caused much con

in the *Geographical*, and *Hydrographical* descriptions of aces; insomuch as there are scarce extant any Descriptions the world or the parts thereof, that are not pestered with noious Errors: the greatest part of them hence arising. It is ined ancient, and till the Sea-Compasse was known, it was e aptest Chart that could be used; because till then, men re Coasters, and for the most part returned back the same y they went forth, and it may still serve without any great rrour in such places as are neer the Equinoctial, also in any other places for short Voyages, and even for long Voges, provided that a man be sure to return the same way at he went, or neer the same. Otherwise, if he trust to the ain Chart, he will be most grossely deceived many times in s course a Point or two of his Compasse, and in his Distance any hundred miles. But in this Sea-Chart called *Mercators*, l or any parts of the World may be set down, according to eir Longitudes, Latitudes, Courses and Distances, as truly and more conveniently for the Mariners use, than upon the lobe it self: So that it will truly shew the direction and istance from place to place, which way soever a man goes or turns.

Some men will say, that in divers reckonings by *Mercators* hart, they have found as little certainty, as by the plain hart. Which I deny not, but the reason is, because there are wor no Charts made directly according to this Projection. will be said, Yes, there be many; and that a man may have them whensoever he will bespeak them. I grant a man ay have those which are so called, but that which is such inced, must not onely have the Meridians, Parallels, and Rumbs rawn according to this Projection; but the Sea-coasts must e inserted by the like Art and mean, as they have formerly een inserted into the common Sea-Chart: otherwise, he that all transfer places out of the common Sea-Chart into *Mertors*, without due knowledge and respect upon what occasion, r for what reason they were so placed in the common Seahart; he shall transfer the errours of the one into the other. nd that sometimes with increase. Wherefore it requires

more

more than an ordinary judgement, to draw a Plot directly cording to this Projection, for any place or places; and must further know, or be made acquainted with the reckon of Mariners frequenting those places; and that truly whet with allowance or without, and whether agreeing or disag ing with their plots, and so comparing one thing with a ther; and weighing all in the balance of a good judgement, shall be able to do it. The ground of the Projection of kinde of Charts was pointed at by *Ptolomy*, many hund years since; and according to that ground, *Mercator* did late years set forth an universal Map of the World: whe upon these have been called *Mercators Charts*. But the how to describe them was first taught by that learned Navi tour of our times, Mr. *Edward Wright*, in his Book of *Correction of Errours in Navigation*. From whence also grounds and reasons of these ensuing Problemes are to taken: and if we would be as grateful to our own Countr men as to Strangers, I see not but we may ascribe as muc him in this, as to any other man. Now that which he h shewed to perform by the Chart it self, we will here shew work by the doctrine of plain Triangles, using the help the Table of *Logarithme Tangents*, beginning at 45 deg 00 minutes, and so increasing upwards, accounting every min. to be one degree of the Meridian line, as the Tangen 45 deg. 30 min. to be one degree of the Meridian line, as Tangent of 46 deg. 00 min. to be two degrees 00 minutes the Meridian line, and so forwards, so that every minute is minutes of the Meridian line, and although that these be the same Meridional parts that are in the doctrine of Tri gles, yet they proceed in the same proportion as the *Sec* added together do, and shall produce the same solution t very Probleme of sayling by *Mercators Chart*, as the other bles do; but because in this small Volume we have but *Chiliad* of 1000 *Logarithmes*, I shall work by leagues, and by miles, or minutes; yet I shall resolve the same Proble of sayling by *Mercators Chart*, that are set down in the stripe of Triangles.

Prob. 1. *To finde by these Tables what Meridional Leagues are contained in any difference of Latitude.*

TO perform this Probleme, we must take half of each of the given Latitudes, and to each half adde 45 degrees 00 min. and the Sun shall shew us the Degrees and Minutes, where we shall find the Tangent to give us the Meridional leagues from the Equinoctial to each latitude, but it shall suffice us to subtract the lesser Tangent out of the greater, and to multiply the difference or remainder by 10, and to divide that Product by 376, and the quotient shall be the meridional leagues contained between the two Latitudes.

As let one Latitude be 50 deg. 00 min. the other 32 deg. 35 min. The half of 50 deg. 00 min. is 25 deg. 00 min. to which adde 45 deg. 00 min. the Sum is 70 d. 00 min. which are 43893.

The half of 32 deg. 35 min. is 16 deg. 17 min. and an half, to which adde 45 deg. 00 min. the Sum is 16 deg. 17 min. $\frac{1}{2}$ where we must look the equal parts, *viz.* at the Tangent of 61 deg. 17 min. and a half, which are 26147. Which subtract from 43893, and the remainder is 17746, which multiplied by 10, is 177460. and that divided by 376, the quotient is 472 leagues neereſt, which are the meridional leagues contained between the two Latitudes, and the like is to be done for all Latitudes whatsoever.

Now although this way doth a little differ, from that way done by meridional parts; yet the difference is of no validity to breed any considerable errour in the course, and so by consequence not in the distance; and therefore I desire a favourable construction of it.

Prob. 2. *The Latitudes and difference of Longitude of two places given: to find the rumb and distance.*

TO the intent the application may be the more evident, we will give examples of two places expressed in the Chart.

As admit the latitude of the Lizard to be 50 deg. 00 min. the Latitude of Summer-Ilands, sometimes called the Bermudas 32

deg. 25 min. and the difference of Longitude to be 70 deg. min. the Summer Ilands being so much to the westward of t Lizard: I demand the course, and the distance from the on to the other.

As in this right angled Triangle A D B. Let A represent the Lizard, and A B the Parallel thereof, D Summer-Ilands, and D B the Meridian thereof.

Then is there given D B, the difference of Latitude 17 d. 35 m. and A B the difference of Longitude 70 d. 00 m. whereby the angles and Hypothenusal should be found by the fourth and second Cases of plain Triangles. But because in this kinde of Projection, the degrees of Longitude and Latitude are not equal; (except in places near the Equinoctial) the degrees of Latitude at every Parallel, exceeding the deg. of longitude, in such proportion as the Equinoctial exceeds that Parallel; therefore these differences of Longitude and Latitude, must first be expressed by some one common measure. And for that purpose serves the Table of Tangents, which sheweth how many equal leagues are from the Equinoctial to every degree of Latitude: namely, of such equal leagues as a degree of Longitude doth contein 20.

Wherefore multiplying 70 deg. 00 min. the difference of Longitude by 20. I have 140 for the Meridional leagues conteined in the difference of Longitude; also (by the last Probleme) I find the Meridional leagues conteined in the difference or Latitude to be 472, so that D B is 472 leagues, and A B 1400 such leagues.

*Therefore by the 4 Case of plain triangles.*

| | |
|---|---|
| As the differ. of latit. in leagues D B 472 *co. arith.* | 73260 |
| Is in proportion to Radius: | |
| So is the differ. of Longitude in leagues A B 1400, | 31461 |
| To the tangent of the rumb, *t* D 71 deg, 21 min. | 10,47211 |

Which sheweth the course from the Summer-Ilands to the Li-

zard to the east northeast 3 deg. 52 min. easterly, or, from the Lizard to the Summer-Ilands, W S W, 3 deg. 52 min. westerly.

*Secondly, for the distance in the Rumb.*

Reduce the difference of Latitude into leagues (multiplying the degrees by 20) and to the Product adding one third, or the minutes.

*Then by the 2 Case of plain triangles.*

| | |
|---|---|
| As sine compl. the Rumb s A, 18 deg. 39 min. *co. ar.* | 049514 |
| To the difference of Latitude D B, 352 leagues, | 254654 |
| To the distance A D, 1100 leagues; | 304168 |

And this is the distance measured in the Rumb; there is a nearer cut between these two places, whereof we shall speak hereafter in *Great Circle sayling*; which is by Segments of several Rumbs often changing the course; but here whensoever we speak of the distance of two places, we mean their distance measured in one Rumb.

Prob. 3. *The Latitude of two places, and their distance given: to finde the Rumb, and difference of Longitude.*

ADmit I sail from the Lizard, being in the Latitude of 50 degrees, upon some point to the Westward 1100 leagues, and then finde my self in the Latitude of 32 deg. 15 min. I would know upon what point I have made my way good; and how much I have altered my Longitude?

The difference of Latitude D B, is 17 deg. 35 min. which reduced into leagues, is 352 leagues. (As in the foregoing type.)

| | |
|---|---|
| As the distance sailed A D, 1100 leagues, *co. ar.* | 695832 |
| Is in proportion to Radius: | |
| So is the difference of latitude D B, 352 leagues | 254654 |
| To sine complement the Rumb s A, 18 deg. 39 min. | 9,50486 |

That is west southwest 3 deg. 51 min. Westerly.

*Secondly, for the difference of Longitude.*

Finde by the first Probleme what Meridional leagues are contained in the difference of latitude, which are here 472, then say;

As Radius
To the difference of latitude in leagues, D B, 472, 267394
So is the tangent of the rumb, t D, 71 deg. 21 min. 47218

To the difference of longitude in leagues, A B, 1400 314612

Which leagues reduced into degrees, dividing them by 20, the quotient is 70 deg. the difference of Longitude required.

## Prob. 4. *By the Rumbe, and Latitudes of two places given, to finde their distance, and difference of Longitude.*

ADmit I sail from the Lizard, being in the Latitude of 5[illegible] deg. West Southwest 3 deg. 53 min. Westerly, till I find myself in the Latitude of 32 deg. 25 min: I demand how far I have sailed, and how much I have altered my Longitude?

The distance is found as in the latter part of the second Probleme thus. The difference of Latitude converted into leagues is 352. Say then,

As sine complem. the rumb, t *A* 18 deg. 39. min. 0, 4951[illegible]
To the difference of Latitude *D* B 352 leagues. 25165[illegible]

So is Radius,
To the distance *A D*, 1100 leagues, 304161

And so much is the distance: the difference of Longitude may be found as in the latter part of the 3 Probleme, saying,

As Radius, to the difference of Latitude in meridional leagues; so is the tangent of the Rumb, to the difference of Longitude in leagues.

## Prob. 5. *By the difference of Longitude, Rumb, and one Latitude: to finde the other Latitude and the distance?*

ADmit I sail from the Lizard, being in the Latitude of 5[illegible] deg. West Southwest 3 deg. Westerly, till I have altered my Longitude 75 deg. how much have I laid the Pole, and how far am I from the Lizard?

Redu[illegible]

Reduce the difference of Longitude into leagues by 20, and so it makes 1400; then say,

As the tangent of the rumb *t D* 71 d. 21 m. *co. ar.* 9,52829
To the difference of Longitude in leagues, A B, 1400. 3,14162

So is Radius,
To the difference of Latitude in leagues, *D B*, 472. 2,67441

Which 472 leagues multiplied by 376, and the Product 177472, and that divide by 10, and the quotient is 17747. Which I subtract from the equal parts of the Latitude of 59 deg 00 min. which we found by the Probleme to be at the tangent of 70 deg. 00 min, *viz.* 43893, and the remainder is 26146, which I seek in the tangents, and finde it the tangent of 61 deg. 17 min. and a half, from which I subtract 45 deg. 00 min. and the remainder is 16 deg. 17 min. and a half, which being doubled is 32 deg. 35 min. The Latitude of the place to which I am come.

## *Secondly, for the Distance.*

Having already the Rumb, and difference of Latitude, it may be found as in the second and fourth Problemes; saying,

As sine compl. the rumb, *s A* 18 d. 39 m. *co. ar.* 0,49514
To the difference of Latitude, D B 352 leagues, 2,54654

So is Radius,
To the distance, A D 1100 leagues, 3,04168

Prob. 6. *By the Rumb, the Distance, and one Latitude given: to find the other Latitude, and the difference of Longitude?*

ADmit I sail West Southwest 3 deg. 51 min. Westerly, 1100 leagues, and then finde my self in the Latitude of 32 deg. 5 min. I demand the Latitude of the place from which I came, and the difference of Longitude between that and this?

*First, for the difference of Latitude.*

As Radius
To the distance run, A D 1100 leagues, 3041 68
So sine compl. the rumb s A, 18 deg. 39 min. 950486
To the difference of latitude, D B, 352 leagues, 2546 54

Which 352 leagues converted into deg. is 17 deg. 35 min. the difference of latitude required; which added to 32 deg. 15 min. makes 50 deg. 00 min. the latitude of the first place.

The difference of Longitude is found as before in the third Probleme 3 saying,

As Radius to the differ. in Latitude in Meridional leagues, so is the tangent of the rumb, to the difference of Longitude in leagues.

And thus the difference of Longitude will be found as in this example to be 70 deg. 00 min.

If at any time you desire to convert this difference of Longitude found in any Parallel into leagues, you may do it after this Example.

7. *Admit there be two places both in the Parallel of 50 degrees, which differ in Longitude 70 deg. 00 min. I demand the distance of these two places?*

First, it is to be understood that the leagues of Longitude in any Parallel, are not in proportion to the distance in leagues, as the Equinoctial is to that Parallel; or as the semidiameter of the one, is to the semidiameter of the other.

That is,

As Radius is in proportion,
To sine compl. the latitude, s c 50 deg. 00 min. 980807
So is difference of longitude, 1480 leagues, 314613
To the distance in that parallel, 900 leagues, 295419

## A Table for the angles which every Rumbe maketh with the Meridian.

| North | South | D. | M. | South | North | |
|---|---|---|---|---|---|---|
| | | 02 | 49 | | | |
| | | 05 | 38 | | | |
| | | 08 | 26 | | | |
| N *by* E | S *by* E | 11 | 15 | S *by* W | N *by* W | 1 |
| | | 14 | 04 | | | |
| | | 16 | 53 | | | |
| | | 19 | 41 | | | |
| NNE | SSE | 22 | 30 | SSW | NNW | 2 |
| | | 25 | 19 | | | |
| | | 28 | 08 | | | |
| | | 30 | 56 | | | |
| NE *by* N | SE *by* S | 33 | 45 | SW *by* S | NW *b* N | 3 |
| | | 36 | 34 | | | |
| | | 39 | 23 | | | |
| | | 42 | 11 | | | |
| NE | SE | 45 | 00 | SW | NW | 4 |
| | | 47 | 49 | | | |
| | | 50 | 37 | | | |
| | | 53 | 26 | | | |
| NE *by* E | SE *by* E | 56 | 15 | SW *b* W | NW *b* W | 5 |
| | | 59 | 04 | | | |
| | | 61 | 52 | | | |
| | | 64 | 41 | | | |
| ENE | ESE | 67 | 30 | WSW | WNW | 6 |
| | | 70 | 19 | | | |
| | | 73 | 07 | | | |
| | | 75 | 56 | | | |
| E *by* N | E *by* S | 78 | 45 | W *by* S | W *by* N | 7 |
| | | 81 | 34 | | | |
| | | 84 | 22 | | | |
| | | 87 | 11 | | | |
| *East* | *East* | 90 | 00 | *west* | *west* | 8 |

# Propositions in *Astronomy* and *Navigation*, performed by the Tables of Artificial *Sines*, *Tangents*, and *Logarithmes*.

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Prop. 1. *The Suns place being known, to finde his Declination.*

AS Radius 10, the Sine of greatest declination, 23 deg. 30 min. so is the Sine of the Suns distance from the next Equinoctial point, to the sine of his present declination.

So the Sun being in 20 deg. 36 minutes of *Taurus*, his declination will be found to be 17 deg. 58 min. almost.

Prop. 2. *The Suns declination being given, to finde his place in the Zodiack.*

AS the sine of the greatest declination is to Radius, so is the present declination to the present place.

So the Sun having 17 deg. 58 min. of North declination, his place will be found to be in 20 d. 36 m. of *Taurus*, or 9 d. 24 m.

Prop. 3. *The Latitude of the place, and declination of the Sun given, to finde his Amplitude.*

AS the Co-sine of the Latitude is to Radius, so the sine of the declination, to the sine of the amplitude.

So the Sun having 11 d. 43 m. of North declination, his amplitude will be found to be 19 d. 15 m. North also: For this is general, that if the Sun be in Northern Signes, as in *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, he hath North declination, and

North amplitude. And if in Southern Signes, as in *Libra*, *pio*, *Sagitarius*, *Capricorn*, *Pisces*, or *Aquarius*, South de- ation and South amplitude.

op. 4. *The Suns declination and amplitude given, to finde the height of the Pole.*

S the sine of the amplitude, to the sine of the declination; so Radius to the Co-sine of the latitude.

So the declination being 11 deg. 43 min. and the amplitude deg. 7 min. the height of the Equinoctial will be found to 8 deg. 19 min. whose complement 51 deg. 41 min. is the ght of the Pole.

op. 5. *The latitude of the place, and declination of the Sun given, to finde his right ascension.*

S Radius to the tangent of the Suns distance from the next Equinoctial point, so is the Co-sine of the greateſt declina- to the tangent of the right ascension.

So the Sun being in 20 deg. of *Taurus* (that is 50 deg. from next Equinoctial point *Aries*) his right ascension will be nd to be 47 deg. 32 min.

op. 6. *The latitude of the place, and declination of the Sun given, to finde the ascensional difference, which is the time of the Suns rising or setting.*

S the Co-tangent of the latitude, to the tangent of the de- clination; so is Radius to the sine of the ascensional dif- ence.

So the latitude being 51 deg. 30 min. North, and the decli- on 20 deg. the difference of ascension will be found to be deg. 14 min. which reduced into time (by allowing 15 deg. one hour, and four minutes of time for one-degree) doth one hour, and almoſt 49 min. for the difference between Suns rising or setting, before or after the hour of six, accor- ding

ding to the time of the year, that is, when the Sun is in N thern signes the Sun rises before, and sets after six, and in S thern signes he rises after, and sets before six,

**Prop. 7.** *The amplitude, and difference of ascensio the Sun, or Star given, to finde his declination.*

AS the sine of the ascensional difference is to the Co-sin the amplitude, so is the Radius to the Co-sine of the de nation,

So the ascensional difference being 27 deg. 34 min. fi the Sun rises at 4 a clock and 10 min. which converted degrees makes 62 deg. 30 min. and the amplitude 33 38. min.

The declination will be found to be 20 deg. 10 min.

**Prop. 8.** *The latitude and declination given, to fi the Meridian altitude.*

IF the Sun have North declination, adde the complemen the latitude to the declination, the Sum is the Meridian titude: But if the Sun have South declination, subtract declination from the complement of the latitude, the resid the Meridian altitude.

So the latitude being 51 deg. 46 min. the complement th of is 38 deg. 20 min. and let the declination be 23 deg. 30 North: Adde 38 deg. 20 min. to 23 deg. 30 min. the Su 61 deg. 50 min. the Meridian altitude. But if the declina had been 23 deg. 30 min. South, subtract 23 deg. 30 min. fi 38 deg. 20 min. the remain would be 14 deg. 50 min. fo Meridian altitude.

**Prop. 9.** *The latitude and declination known, to fi the height of the Sun at any hour.*

AS the Co-sine of the hour from the Meridian, is to Radi so the tangent of the latitude, to the tangent of a fourth

in the latitude of 51 deg. 30 min. and one hour from the dian, (which is either 11 or 1 a clock) this fourth ark will und to be 52 deg. 28 min.

en conſider the declination of the Sun, and the hour pro-, if the latitude and declination be alike, both North as us, and the hour propoſed be between noon and ſix, take eclination out of the fourth ark, the remainder ſhall be a ark: —— But if the hour fall between ſix and midnight, e latitude and declination be unlike (one North, the other h) adde the declination to the fourth ark, and the Sum ſhall fifth ark, if the Sun exceed 90 deg. take it from 180 deg. emain is the fifth ark. The fifth ark being found,

*ay,*

the ſine of the fourth ark, to the ſine of the latitude; ſo Co-ſine of the fifth ark, to the ſine of the altitude.

the latitude being 51 deg. 30 min. North, the declination 30 m. North; If it be required to finde the Suns altitude at he morning, you ſhall finde it to be 27 deg. 17 min.

p. 10. *The latitude of the place, the declination of e Sun, and the altitude of the Sun given, to finde is Azimuth.*

nſider whether the Suns declination be North or South, ſo ave you his diſtance from the Pole, —— Adde the Suns nce from the Pole, the complement of your latitude, and complement of your altitude all three into one ſum, and half that ſum, ſubtract the diſtance of the Sun from the , and note the difference;

*hen ſay,*

As Radius, to the Co-ſine of the altitude, ſo the Co-ſine e latitude to a fourth ſine.

As this fourth ſine is to the ſine of the half ſum; ſo is ſine of the difference to a ſeventh ſine; unto which ſe-h ſine, if you adde the ſine of 90 deg. half that ſum will he ſine of an ark, whoſe complement being doubled is

the

the Azimuth from the North part of the Meridian.

So if the latitude be 51 deg. 30 min. North, the declin 20 deg. South, and the altitude 12 deg. the Azimuth fro North part of the Meridian will be found to be 140 deg.

**Prop. 11.** *The latitude given, to finde how many nutes, or miles of the Equinoctial, make a d of longitude in any Parallel.*

AS the sine of 90 deg. is to the sine of 60 deg. so the Co of the latitude, to the miles answerable to a degree i latitude desired.

So in the latitude of 51 deg. 40 min. 37 miles will answ one degree in the longitude.

**Prop. 12.** *The course and distance given, to find difference of latitude.*

AS the sine of 90 deg. to the Logarithm of the miles run the sine of the courses distance from East or West, to the ference of latitude.

So if the course be West *S. w.* (which is 22 deg. 30 m. the West) the miles 225, the difference of latitude wil found to be 1 deg. 26 min.

**Prop. 13.** *The course and distance given, to find difference of longitude.*

AS the sine of 90 deg. is to the miles run, so is the sine of course from South to North, to the miles you are depa from your first Meridian.

So if the course be *N. w.* by *N.* (which is 33 deg. 45 min. the North) the miles run 180, the number of miles which are departed from the Meridian will be found to be 100, w if you divide by the number of miles answerable to a degre longitude in the latitude, you then finde your self to be; the q tient gives you the degrees and minutes of difference of lo tude.

P

. 14. *The distance and departure from the Meridian given, to finde the Course.*

he miles run, to the sine of 90, so the departure from the eridian, to the sine of your course from North or South.
if the departure from the Meridian be 75 miles, in running miles, the course steered is 30 d. which is *S. W.* by *S.* Southy.

. 15. *The latitude of the place, the declination and altitude of the Sun given, to finde the hour of the day.*

de the Suns distance from the Pole, the complement of the titude, and the complement of the altitude into one Sum, from half the sum subtract the complement of the altitude, ng the difference;

*Then say,*

. As Radius, to the sine of the Suns distance from the Pole, e Co-sine of the latitude, to a fourth sine, —— Then,
. As this fourth sine, to the sine of the half sum, so the sine e difference, to a seventh sine; unto which seventh sine, if adde the sine of 90 deg. half that sum will be the sine of rk, whose complement doubled and converted into time, is hour required.
o if the latitude be 51 deg. 30 min. the declination 20 deg. thward, and the altitude 12 deg. the time will be found to hours 24 min. almost.

The

# *The Use of the following Tables Questions that concern Geograph*

THough there be diverse wayes to finde the dist places, *viz.* by the Globe, by Maps, Geometrical Yet the most exact of all other is by *Trigonometry*, way we will here lay down in three Propositions.

Prop. I. *Two places differing onely in the Latitude; to finde their distance.*

In this Proposition there are two varieties, *viz.*

1 If the two places propounded lie under one and the Meridian, and both of them on one side of the Æquino you must subtract the lesser Latitude from the greater, a remainder converted into miles (by allowing 60 miles to gree) will be the distance required.

*Example.* *Vicentia* and *Augusta* lie under one and the Meridian, and both on the North side of the Æquino *Vicentia* having 44 d. 55′. latitude, and *Augusta* 47 d. 4 titude, the difference of latitude is 2 d, 47′, which con into miles by multiplying it by 6 , and adding thereto th minutes, maketh 167 miles, and that is their distance.

2 If one place lie on the North, and the other on the side of the Æquinoctial (yet both under the same Meridia must then adde both the latitudes together, and the su verted into miles, will give their distance.

Prop. II. *Two places differing onely in Longitude, being given; to finde their distance.*

In this P. opposition also there are two varieties.

1 If the two places propounded lie under the Æquino then the difference of their longitudes reduced into mile lowing 60 miles to a degree) giveth the distance of the p required.

Exa

*Example.* It is required to know the distance of the Island *Samatra* from the Island *S. Thoma*, (both lying under the Æquinoctial) the Island *Samatra*, hath long. 137 d. 10′. and the Island of S. *Thoma* hath long. 33 d, 10′, therefore the difference of their longitude is 104 d, which multiplied by 60, maketh 2640 miles, which is the distance of the said places.

But if the two places propounded differ onely in longitude, and lie not under the Æquinoctial, but under some other intermediate Parallel, between the Æquinoctial and one of the Poles, then to finde their distance, the proportion will be,

As the Radius, or 90 deg. is to the Co-sine of the common latitude;

So is the sine of half the difference of longitude, to the sine of half their distance.

*Example.* The Cities of *Compostella* and *Constantinople* have almost one latitude, *viz.* 43 deg. 0 min. but differ in longitude 30 degrees, 15 minutes. The complement of their latitude is 47 degrees, and the half longitude is 21 deg. 37 min. 30 seconds; therefore the operation is thus to be framed.

| | |
|---|---|
| The Radius or sine of 90 deg. | 10, |
| The Co-sine of the common latitude 47 d | 9,8641 |
| The sine of the half difference of longitude 21 d, 37′, 30″. | 9,5664 |
| The sine of half their distance | 9,43053 |

The arch 15 d, 38′, being doubled, giveth 31 d, 16′, which converted into miles (as before is taught) giveth 1876, which is the distance between the two places required.

III. *Two places being given, which differ both in longitude and latitude, to finde their distance.*

In this Proposition is conteined three varieties.

If one place be under the Æquinoctial Circle, and the other towards either Pole, then the proportion is,

As the Radius or sine of 90 degrees

Is to the Co-sine of the difference of longitude:

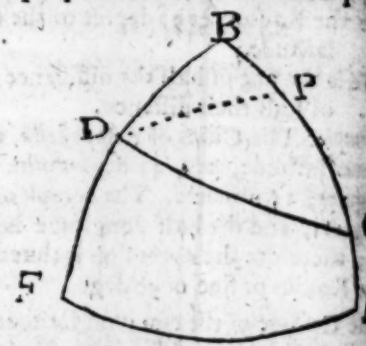
So is the Co-sine of the latitude given,

To the Co-sine of their distance required.

*Exam.* If-

*Example.* If it were required to finde the distance o Island of St. *Thoma* (which lieth directly under the Æq tial, and hath longitude 38 deg.) and the City of *L* (which hath 51 d 30′ latitude, and 20 d. longitude) the stance will be found to be 3222 miles.

2 If both the places propounded be without the Æq tial, and on the Northern or Southern side thereof, the proportion must be wrought at two operations, and be there is some difficulty therein, we have added the follow gure, which will make it perspicuous to the meanest capac




Let D represent *London*, whose latitude is FD 51 deg. 30 min. and longitude 20 degrees no minutes, and let O represent *Jerusalem*, whose latitude MO is 31 degr. 40 min. and longitude 66 degr. which being known, you have given (1) the side BD, the complement of the latitude of *London*, 38 deg. 30 min. the side BO, the complement of the latitude of *Jerusalem* degrees, 20 min. (3) the angle DBO (whose measure is the difference of longitude 46 deg. no min. and it is re to finde the side DB. Therefore the proportion is,

1 As the Radius BM 90 degrees, 10,000
To the Co-sine of DBO 44 deg. 9,841
So is the Tangent of DB 38 deg. 30′ 9,900
To the Tangent of BP 28 deg. 55′ 9,741

Which being substracted from BO 58 deg. 20 min. the maineth OP, 29 deg. 25 min. then say,

2 As the Co-sine of B P 51 d. 5 min. 9,8421618

To the Co-sine of P O 60 d. 35′ 9,9990535

So is the Co-sine of D B 51 d. 30′ 9,8935443

19,8335978

To the Co-sine of D O 52 d. 5′ 9,8914290

ose complement is 38 deg. 5′, which converted into miles before is taught, *fecit* 2331 miles and such is the distance required.

3 If the two places propounded differ both in longitude and titude, and be both of them without the Equinoctial, and one them towards the North, and the other toward the South le, then the proportion is;

1 As the Radius is to the Co-sine of the difference of longitude,

is the Co-tangent of one of the latitudes, to the Tangent of another ark,

Which being subtracted out of the other latitude, and 90 d. added thereto, Say

2 As the Co-sine of the ark found, is to the Co-sine of the k remaining,

So is the Co-sine of the latitude first taken, to the Co-sine of e distance.

These are all the varieties that can possibly happen in any oposition concerning the distance of places, and is the exactest y that can be invented, provided the longitude and latitude truly given.

C A

# A Table shewing the Longitude and latitude of all the principal Cities and places in *Europe*, according to the observations of *Tycho*, *Longomontanus*, *Kepler*, and others.

| The Names of the Places | Latitude D | Latitude M | Longitude D | Longitude M |
|---|---|---|---|---|
| Alexandria in Egypt | 30 | 59 | 60 | 30 |
| Amsterdam | 52 | 20 | 28 | 00 |
| Antioch | 37 | 20 | 70 | 15 |
| Antwerp in Brabant | 51 | 12 | 28 | 00 |
| Aquisgrane | 51 | 06 | 28 | 52 |
| Athens | 37 | 42 | 52 | 30 |
| Augusta Vindel. | 48 | 22 | 35 | 45 |
| Babylon | 35 | 00 | 73 | 00 |
| Barwick | 55 | 50 | 19 | 50 |
| Bridges in Flanders | 51 | 30 | 34 | 26 |
| Brunswick | 52 | 16 | 34 | 45 |
| Brandenburg | 52 | 30 | 37 | 20 |
| Calecute in India | 11 | 20 | 111 | 45 |
| Carlile | 54 | 50 | 19 | 40 |
| Canterbury | 51 | 15 | 20 | 15 |
| Cambridge | 52 | 17 | 20 | 30 |
| Calice | 50 | 30 | 20 | 20 |
| Constantinople | 43 | 05 | 55 | 30 |
| Dover | 51 | 20 | 21 | 15 |
| Dublin | 54 | 40 | 12 | 40 |
| Damascus | 33 | 00 | 69 | 00 |
| Edinburgh in Scotland | 56 | 26 | 20 | 20 |
| Ephesus | 37 | 40 | 57 | 40 |
| Frankford upon Mœne | 50 | 02 | 33 | 30 |
| Frankford upon Od. | 52 | 20 | 38 | 45 |
| Florence | 43 | 10 | 35 | 00 |

| The Names of the Places. | Latitude D | M | Longitude. D | M |
|---|---|---|---|---|
| Geneva | 45 | 25 | 29 | 50 |
| Hamburg | 53 | 42 | 34 | 15 |
| Hierusalem | 32 | 10 | 70 | 45 |
| Lincolne | 53 | 00 | 20 | 30 |
| LONDON | 51 | 32 | 20 | 00 |
| Leicester | 52 | 42 | 19 | 42 |
| Lisborn | 39 | 38 | 09 | 10 |
| Middleburg in Zeland | 51 | 31 | 26 | 40 |
| Mount Sinai | 30 | 00 | 64 | 00 |
| Marpurge | 50 | 43 | 32 | 35 |
| Munster in Westphal. | 51 | 34 | 31 | 10 |
| Naples in Italy | 40 | 42 | 38 | 25 |
| Newarke in England | 53 | 02 | 20 | 07 |
| Narbone in France | 41 | 50 | 25 | 05 |
| Ninive | 35 | 56 | 80 | 30 |
| Norimberg | 49 | 26 | 35 | 45 |
| Oxford | 51 | 50 | 19 | 00 |
| Prague | 50 | 06 | 38 | 15 |
| Paris | 48 | 40 | 20 | 20 |
| Padua | 45 | 06 | 36 | 25 |
| Petersburg | 52 | 30 | 20 | 20 |
| Rome | 42 | 00 | 36 | 30 |
| Quinzay | 37 | 40 | 192 | 00 |
| Rotterdam | 51 | 55 | 27 | 35 |
| Red-Sea | 29 | 50 | 63 | 30 |
| Sardes in Lydia | 38 | 34 | 59 | 45 |
| Salisburg | 47 | 42 | 37 | 50 |
| Stamford | 52 | 36 | 20 | 10 |
| Spier | 49 | 24 | 33 | 00 |
| Tubing Wittenberg | 48 | 34 | 33 | 45 |
| Venice | 45 | 15 | 36 | 15 |
| Vienna | 48 | 20 | 40 | 00 |
| Uraniburg | 55 | 54 | 36 | 45 |
| Wittenburg | 51 | 52 | 37 | 16 |
| Worms | 50 | 25 | 31 | 30 |
| York | 53 | 50 | 20 | 10 |

## The use of the Tables of the Sun and Stars Right Ascension.

AT the end of this Book, you have two Tables, the o[ne] shewing the right ascension of the sun every day in th[e] year, the other sheweth the right ascension, and declination [of] certain of the most eminent fixed stars, I will in this place she[w] how by the joynt use of these two Tables, any star mentioned i[n] the Table of stars will come to the Meridian, and the rule wi[ll] hold general for any star whose right ascension and declinatio[n] is known. The manner of working is as followeth.

### The Rule.

Subtract the right ascension of the sun from the right asce[n]sion of the star, (whose time of coming to the Meridian is re[-]quired) the remainer is the time of the said stars coming to th[e] Meridian, afternoon, but if the right ascension of the star [is] lesse then the right ascension of the sun, adde 24 hours there[-]unto, and subtract the right ascension of the sun therefrom, th[e] remainer is the time of the stars coming to the Meridian.

*Example.* Upon the 11th of Decem. it is required to know whe[n] the *Buls-eye* comes to the Meridian; by your Table of the su[n] right ascension, you find that the suns right ascension on th[e] 11th. of December is 17 hours 59 min. and by your Table o[f] stars you find the right ascension of the *Bulseye* to be 4 hours 1[0] Now, (according to your rule) because the right ascension o[f] the sun is more then the right ascension of the star, and sub[-]traction cannot be made; you must adde 24 hours to the star[s] declination, so will the sum be 28 hours 10 m. from which tak[e] 17 hours 59 m. the right ascension of the sun, the remainer wil[l] be 10 hours 11 m. at which time the *Buls-eye* will come to th[e] Meridian on the 11th. of December, after the sun, that is at 11 past 10 at night, the *Buls-eye* will be due South, the like of an[y] other star whose right ascension is known. See the following work

Righ[t]

| | ho. | mi. |
|---|---|---|
| ht aſcenſion of the ſun on the 11th. of Decemb. | 17 | 59 |
| ht aſcenſion of the *Bulls-eye* | 04 | 10 |
| ours added | 24 | 00 |
| the ſum | 28 | 10 |
| ſuns right aſcenſion ſubtracted | 17 | 59 |
| remains | 10 | 11 |

rue time that the *Bulls-eye* will come to the Meridian.

his Rule here delivered is of excellent uſe for Seamen, eby to find their latitude, for it is to be noted that the Rules ch you obſerve for finding of your latitude by the ſun, the e may be performed by the ſtars they being upon the Meri-, as is already noted in the laſt Page of my doctrine of Tri-les, to which I refer you.

### *altitude of any known Star being given, to find thereby the hour of the night.*

Y the former rule find the time of the known ſtars coming to the Meridian, on the day propoſed. Then ſeek out the horary diſtance of that ſtar from the Meridian, ch may be found by the ſame rule as you find the hour of day by the Sun, as is Prop. 15.

Theſe things being found, if the ſtar be on the Eaſt ſide, yet come to the Meridian, the difference of thoſe two num- of hours is the hour of the night: but if the ſtar be Weſt- d paſt the Meridian, the ſum of thoſe number of hours is the r of the night.

### *Of finding the variation of the Compaſſe.*

y the third Propoſition before going, you are taught to find Suns amplitude, that is, how far diſtant the Sun riſeth or th from the true Eaſt or Weſt points of the Horizon.

hus if the latitude given were 51 d. 32', and the Suns de-tion 15 deg. 10 min. North, the amplitude will be found

to

to be 24 deg. 52 min. North, because the Suns declinatio North.

Of the amplitude thus found there is often use made at for finding the variation of the Compasse. Which is done this manner.

Supposing the circumference or outermost edge of the ca sie of the Compasse to be divided into 360 degrees, an points of the needles to be placed directly under the fi deluce, or North and South points: you are to obser Sun-rising or setting, how many degrees the Sun is fro East or West points of the Compasse, which number o grees, if they agree with the amplitude found by this pos as is before shewed, and be on the same side; then has Compasse no variation: but if they differ look how many grees that difference is, so much is the variation.

As for example, admit I find the amplitude to be 24 d. Northerly, then I know that the Sun should set almost 2 grees from the West to the Northwards, but observi Sun-setting with my Compasse, admit I find it to set but 1 grees from the West point of my Compasse to the Northw then hereby I gather that the variation of my Compasse most 6 degrees. And thus you may find how much the vari of the Compasse is. Now,

## *To find which way the Compasse varieth.*

If the degree of the Compasse which directly respects Sun at his rising or setting, (namely, the degree of ampl found as before) be more towards the right hand then the rising or setting, the variation is Easterly; but if it be towards the left hand, the variation is Westerly. Bec when a mans face is towards the North, the East is on his hand, and the West on his left.

As in this example, I find by the amplitude, that the should be set almost 25 degrees from the West point o Compasse northerly, but setting the Sun, I see that the a gree of my compasse is more towards the right hand tha

e of Sun-set, therefore, I conclude, that the variation is
erly.
nd thus is the variation of the Compasse found to be almost
grees Easterly, so that the North point of the Compasse
s not the true north, but points almost 6 degrees to the
ward of the north, and consequently all the other points
e Compasse direct more towards the right hand than they
ld do by almost 6 deg. And the like in all points is to be un-
tood if the observation had been made at sun-rising.
ote. It is fittest to make these observations when the sun
s to be a little above the horizon, namely, when the lower
of the sun seems almost to touch the horizon, for then the
s in the horizon, though by reason of his refraction and pa-
x he seem to be above it.

## *The altitudes of any two known fixed stars taken when they are both in the same Azimuth, to find the height of the Pole.*

rst, say,
the sine of the difference of the stars altitudes, is to the
of the difference of their Right ascensions: so is the sine
e neerer stars distance from the apparent Pole, to the sine
angle to be kept.
gain, Compare the furthest stars distance from the Pole
the distance from the Zenith, and say,
the Radius, is to the sine of the complement of the angle
: so is the tangent of the lesser of the compared arches,
e tangent of the first base.
bduct the first base out of the greater of the two compared
s; and the remains shall be the second base.
hen lastly, say,
the sine of the complement of the first base,
o the sine of the complement of the second base:
is the sine of the complement of the lesser of the two com-
pared arches
e sine of the height of the Pole, or latitude.

## *An advertisement to the Reader.*

THere is lately published by Mr. *Henry Phill*
a Treatise, called, *The advancement of the*
*of Navigation*: Or, *The Seamans Canon of*
*angle*: a Book of excellent use for all *Sea-men* w
soever, for that by the new Tables therein conteined
Natural Sines, Tangents, and Secants, to any radius
cases in plain right lined triangles, may be expediti
and exactly resolved only by looking into the Tab
without any calculation whatsoever, by which you
keep your account in any latitude, as well by the
*Sea-Chart* as by the *Plain Chart*, and that without
help of meridional parts, much better, quicker, and
acter. There is also conteined in the said Book ya
of Examples, of all kinds, and the Tables not only
plyed to the art of Navigation, but to surveying
Land, in which art how necessary and useful they a
leave to the judgement of those whose shall find the
nefit of them in their practice. Besides, there is a
to this Book a second part, shewing several ways
regulating the Log-line, for the more exact findin
the Ships way, with several other Instruments,
conclusions tending to the keeping of an exact acco
of time, with divers other things of the like conc
ment.

*Pag.* 15. *lin.* 6. *for* Sun *read* sum.

FINIS.

# A TRIANGULAR CANON Logarithmical:

OR,

## A Table of Artificial *Sines*, *Tangents*, and the *Complements* Arithmetical of *Sines*, supplying the use of *Secants*.

To *Radius* 10,00000, and to every Degree and Minute of the *Quadrant*.

*LONDON*,
Printed by *R.* and *W. Leybourn*; for *George Hurlock*, and are to be sold at his Shop at *Magnus* Church-corner.
1659.

PATENT OFFICE
LIBRARY.

# To the READER.

THis Table of Artificial *Sines*, *Tangents*, and *Arithmetical Complements* of *Sines* to supply the use of *Secants*, with a *Chiliad* of one Thousand *Logarithms*, is thought fit (by Mr. *Richard Norwood*, & *Henry Bond*) to be Printed to the *Radius* 10,00000; that such as are desirous thereof may have it at a more reasonable rate, then the other larger *Tables* are at; and because it is in a more portable volume, and is of the same use that the other Tables are; For by these Tables may be resolved all plain and Spherical *Triangles*; and all *Problemes* of Sayling; either according to the plain *Sea-chart*, or according to *Mercators-chart* (without any other Meridional parts; then what are contained in these *Tables*) as it may partly appear, if you look in the latter end of the *Appendix* of the *Path-way to perfect Sayling*, now newly Printed, *Vale*;

| 0 | Sine. | Sine comple. | Tang. | Tangen comple. | | com. of fine | com. of tin. |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 1000000 | 0 | Infinite | 60 | 1000000 | 0000 |
| 1 | 646372 | 999999 | 646372 | 1353627 | 59 | 353627 | 0000 |
| 2 | 676475 | 999999 | 676475 | 1323524 | 58 | 323524 | 0000 |
| 3 | 694084 | 999999 | 694084 | 1305915 | 57 | 305915 | 0000 |
| 4 | 706578 | 999999 | 706578 | 1293421 | 56 | 293421 | 0000 |
| 5 | 716269 | 999999 | 716269 | 1283730 | 55 | 283730 | 0000 |
| 6 | 724187 | 999999 | 724187 | 1275812 | 54 | 275812 | 0000 |
| 7 | 730882 | 999999 | 730882 | 1269117 | 53 | 269117 | 0000 |
| 8 | 736681 | 999999 | 736681 | 1263318 | 52 | 263318 | 0000 |
| 9 | 741796 | 999999 | 741796 | 1258203 | 51 | 258203 | 0000 |
| 10 | 746372 | 999999 | 746372 | 1253627 | 50 | 253627 | 0000 |
| 11 | 750511 | 999999 | 750512 | 1249487 | 49 | 249488 | 0000 |
| 12 | 754290 | 999999 | 754290 | 1245709 | 48 | 245709 | 0000 |
| 13 | 757766 | 999999 | 757767 | 1242232 | 47 | 242233 | 0000 |
| 14 | 760985 | 999999 | 760985 | 1239014 | 46 | 239014 | 0000 |
| 15 | 763981 | 999999 | 763982 | 1236017 | 45 | 236018 | 0000 |
| 16 | 766784 | 999999 | 766784 | 1233215 | 44 | 233215 | 0000 |
| 17 | 769417 | 999999 | 769417 | 1230582 | 43 | 230582 | 0000 |
| 18 | 771899 | 999999 | 771900 | 1228099 | 42 | 228100 | 0000 |
| 19 | 774247 | 999999 | 774248 | 1225751 | 41 | 225752 | 0000 |
| 20 | 776475 | 999999 | 776476 | 1223523 | 40 | 223524 | 0000 |
| 21 | 778594 | 999999 | 778595 | 1221404 | 39 | 221405 | 0000 |
| 22 | 780614 | 999999 | 780615 | 1219385 | 38 | 219385 | 0000 |
| 23 | 782545 | 999999 | 782546 | 1217453 | 37 | 217454 | 0000 |
| 24 | 784393 | 999998 | 784394 | 1215605 | 36 | 415606 | 0000 |
| 25 | 786166 | 999998 | 786167 | 1213832 | 35 | 213833 | 0000 |
| 26 | 787869 | 999998 | 787870 | 1212129 | 34 | 212130 | 0000 |
| 27 | 789508 | 999998 | 789509 | 1210490 | 33 | 210491 | 0000 |
| 28 | 791087 | 999998 | 791089 | 1208910 | 32 | 208912 | 0000 |
| 29 | 792611 | 999998 | 792613 | 1207386 | 31 | 207388 | 0000 |
| 30 | 794084 | 999998 | 794085 | 1205914 | 30 | 205915 | 0000 |
| | Sine comple. | Sine. | Tangen comple. | Tang. | 89 | | |

| | Sine. | Sine compl. | Tang. | Tangent comple. | | com. ar. of sine | com. ar of tan. co |
|---|---|---|---|---|---|---|---|
| 0 | 794084 | 999998 | 794085 | 1205914 | 30 | 205915 | 000001 |
| 1 | 795508 | 999998 | 795509 | 1204490 | 29 | 204491 | 000001 |
| 2 | 796886 | 999998 | 796888 | 1203111 | 28 | 203113 | 000001 |
| 3 | 798223 | 999998 | 798225 | 1201774 | 27 | 201776 | 000002 |
| 4 | 799519 | 999997 | 799521 | 1200478 | 26 | 200480 | 000002 |
| 5 | 800778 | 999997 | 800780 | 1199219 | 25 | 199221 | 000002 |
| 6 | 802002 | 999997 | 802004 | 1197995 | 24 | 197997 | 000002 |
| 7 | 803191 | 999997 | 803194 | 1196805 | 23 | 196808 | 000002 |
| 8 | 804350 | 999997 | 804352 | 1195647 | 22 | 195649 | 000002 |
| 9 | 805478 | 999997 | 805480 | 1194519 | 21 | 194521 | 000002 |
| 10 | 806577 | 999997 | 806580 | 1193419 | 20 | 193422 | 000002 |
| 11 | 807649 | 999996 | 807653 | 1192346 | 19 | 192350 | 000003 |
| 12 | 808696 | 999996 | 808699 | 1191300 | 18 | 191303 | 000003 |
| 13 | 809718 | 999996 | 809721 | 1190278 | 17 | 190281 | 000003 |
| 14 | 810716 | 999996 | 810720 | 1189279 | 16 | 189283 | 000003 |
| 15 | 811692 | 999996 | 811696 | 1188303 | 15 | 188307 | 000003 |
| 16 | 812647 | 999996 | 812650 | 1187349 | 14 | 187352 | 000003 |
| 17 | 813581 | 999995 | 813585 | 1186414 | 13 | 186418 | 000004 |
| 18 | 814495 | 999995 | 814499 | 1185500 | 12 | 185504 | 000004 |
| 19 | 815390 | 999995 | 815395 | 1184604 | 11 | 184609 | 000004 |
| 20 | 816268 | 999995 | 816272 | 1183727 | 10 | 183731 | 000004 |
| 21 | 817128 | 999995 | 817132 | 1182867 | 9 | 182871 | 000004 |
| 22 | 817971 | 999995 | 817976 | 1182023 | 8 | 182028 | 000004 |
| 23 | 818798 | 999994 | 818803 | 1181196 | 7 | 181201 | 000005 |
| 24 | 819610 | 999994 | 819615 | 1180384 | 6 | 180389 | 000005 |
| 25 | 820407 | 999994 | 820412 | 1179587 | 5 | 179592 | 000005 |
| 26 | 821189 | 999994 | 821195 | 1178804 | 4 | 178810 | 000005 |
| 27 | 821958 | 999994 | 821964 | 1178035 | 3 | 178041 | 000005 |
| 28 | 822713 | 999993 | 822719 | 1177280 | 2 | 177286 | 000006 |
| 29 | 823455 | 999993 | 823462 | 1176536 | 1 | 176544 | 000006 |
| 30 | 824185 | 999993 | 824192 | 1175807 | 0 | 175814 | 000006 |
| | Sine compl. | Sine. | Tangent comple. | Tang. | | | |

| I | Sine. | Sine comple. | Tang. | Tangent comple. | | com. of fine | com. of sin. |
|---|---|---|---|---|---|---|---|
| 0 | 824185 | 999993 | 824192 | 1175807 | 60 | 175814 | 00000 |
| 1 | 824903 | 999993 | 824910 | 1175089 | 59 | 175096 | 00000 |
| 2 | 825609 | 999992 | 825616 | 1174383 | 58 | 174390 | 00000 |
| 3 | 826304 | 999992 | 826311 | 1173688 | 57 | 173695 | 00000 |
| 4 | 826988 | 999992 | 826995 | 1173004 | 56 | 173011 | 00000 |
| 5 | 827661 | 999992 | 827669 | 1172330 | 55 | 172338 | 00000 |
| 6 | 828324 | 999992 | 828332 | 1171667 | 54 | 171675 | 00000 |
| 7 | 828977 | 999991 | 828985 | 1171014 | 53 | 171022 | 00000 |
| 8 | 829630 | 999991 | 829629 | 1170330 | 52 | 170379 | 00000 |
| 9 | 830254 | 999991 | 830263 | 1169736 | 51 | 169745 | 00000 |
| 10 | 830879 | 999991 | 830888 | 1169111 | 50 | 169120 | 00000 |
| 11 | 831495 | 999990 | 831504 | 1168495 | 49 | 168504 | 00000 |
| 12 | 832102 | 999990 | 832112 | 1167887 | 48 | 167897 | 00000 |
| 13 | 832701 | 999990 | 832711 | 1167288 | 47 | 167298 | 00000 |
| 14 | 833292 | 999989 | 833302 | 1166697 | 46 | 166707 | 00000 |
| 15 | 833875 | 999989 | 833885 | 1166114 | 45 | 166124 | 00000 |
| 16 | 834450 | 999989 | 834461 | 1165538 | 44 | 165549 | 00000 |
| 17 | 835018 | 999989 | 835028 | 1164971 | 43 | 164981 | 00000 |
| 18 | 835578 | 999988 | 835589 | 1164410 | 42 | 164421 | 00000 |
| 19 | 836131 | 999988 | 836142 | 1163857 | 41 | 163868 | 00000 |
| 20 | 836677 | 999988 | 836689 | 1163310 | 40 | 163322 | 00000 |
| 21 | 837217 | 999987 | 837229 | 1162770 | 39 | 162782 | 00001 |
| 22 | 837749 | 999987 | 837762 | 1162237 | 38 | 162250 | 00001 |
| 23 | 838276 | 999987 | 838288 | 1161711 | 37 | 161723 | 00001 |
| 24 | 838796 | 999987 | 838809 | 1161190 | 36 | 161203 | 00001 |
| 25 | 839310 | 999986 | 839323 | 1160676 | 35 | 160689 | 00001 |
| 26 | 839817 | 999986 | 839831 | 1160168 | 34 | 160182 | 00001 |
| 27 | 840319 | 999986 | 840333 | 1159666 | 33 | 159680 | 00001 |
| 28 | 840816 | 999985 | 840830 | 1159169 | 32 | 159183 | 00001 |
| 29 | 841306 | 999985 | 841321 | 1158678 | 31 | 158693 | 00001 |
| 30 | 841791 | 999985 | 841806 | 1158192 | 30 | 158208 | 00001 |
| | Sine comple. | Sine. | Tangen comple. | Tang. | 88 | | |

| | S...e. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine | com. ar of fin. c8 |
|---|---|---|---|---|---|---|---|
| 0 | 841791 | 999985 | 841806 | 1158193 | 30 | 158208 | 000014 |
| 1 | 842271 | 999984 | 842286 | 1157713 | 29 | 157728 | 000015 |
| 2 | 842746 | 999984 | 842761 | 1157238 | 28 | 157253 | 000015 |
| 3 | 843215 | 999984 | 843231 | 1156768 | 27 | 156784 | 000015 |
| 4 | 843679 | 999983 | 843696 | 1156303 | 26 | 156320 | 000016 |
| 5 | 844139 | 999983 | 844156 | 1155843 | 25 | 155860 | 000016 |
| 6 | 844594 | 999983 | 844611 | 1155388 | 24 | 155405 | 000016 |
| 7 | 845044 | 999982 | 845061 | 1154938 | 23 | 154955 | 000017 |
| 8 | 845489 | 999982 | 845506 | 1154493 | 22 | 154510 | 000017 |
| 9 | 845930 | 999981 | 845948 | 1154051 | 21 | 154069 | 000018 |
| 10 | 846366 | 999981 | 846384 | 1153615 | 20 | 153633 | 000018 |
| 11 | 846798 | 999981 | 846817 | 1153182 | 19 | 153201 | 000018 |
| 12 | 847226 | 999980 | 847245 | 1152754 | 18 | 152773 | 000019 |
| 13 | 847649 | 999980 | 847669 | 1152330 | 17 | 152350 | 000019 |
| 14 | 848069 | 999980 | 848089 | 1151910 | 16 | 151930 | 000019 |
| 15 | 848484 | 999979 | 848505 | 1151494 | 15 | 151515 | 000020 |
| 16 | 848896 | 999979 | 848916 | 1151083 | 14 | 151103 | 000020 |
| 17 | 849303 | 999978 | 849325 | 1150674 | 13 | 150696 | 000021 |
| 18 | 849707 | 999978 | 849729 | 1150270 | 12 | 150292 | 000021 |
| 19 | 850107 | 999978 | 850129 | 1149870 | 11 | 149892 | 000021 |
| 20 | 850504 | 999977 | 850526 | 1149473 | 10 | 149495 | 000022 |
| 51 | 850897 | 999977 | 850920 | 1149079 | 9 | 149102 | 000022 |
| 52 | 851286 | 999976 | 851309 | 1148690 | 8 | 148717 | 000023 |
| 53 | 851672 | 999976 | 851696 | 1148303 | 7 | 148327 | 000023 |
| 54 | 852055 | 999976 | 852079 | 1147920 | 6 | 147944 | 000023 |
| 55 | 852434 | 999975 | 852458 | 1147541 | 5 | 147565 | 000424 |
| 56 | 852810 | 999975 | 852834 | 1147165 | 4 | 147189 | 000024 |
| 57 | 853182 | 999974 | 853207 | 1146792 | 3 | 146817 | 000025 |
| 58 | 853552 | 999974 | 853577 | 1146422 | 2 | 146447 | 000025 |
| 59 | 853918 | 999973 | 853944 | 1146055 | 1 | 146081 | 000026 |
| 60 | 854281 | 999973 | 854308 | 1145691 | 0 | 145718 | 000026 |
| | Sine compl. | Sine. | Tangent. complem | Tang. | | 88 | |

| ° | Sine. | Sine compl. | Tang | Tangent comple. | | com. at of fine. | com. at of fin. |
|---|---|---|---|---|---|---|---|
| 0 | 854281 | 999973 | 854308 | 1145691 | 60 | 145718 | 00000 |
| 1 | 854642 | 999973 | 854669 | 1145330 | 59 | 145357 | 00000 |
| 2 | 854999 | 999972 | 855026 | 1144973 | 58 | 145000 | 00000 |
| 3 | 855353 | 999972 | 855381 | 1144618 | 57 | 144646 | 00000 |
| 4 | 855705 | 999971 | 855733 | 1144266 | 56 | 144294 | 00000 |
| 5 | 856094 | 999971 | 856082 | 1143917 | 55 | 143945 | 00000 |
| 6 | 856399 | 999970 | 856429 | 1143570 | 54 | 143600 | 00000 |
| 7 | 856743 | 999970 | 856772 | 1143227 | 53 | 143216 | 00000 |
| 8 | 857083 | 999969 | 857113 | 1142886 | 52 | 1429 6 | 00000 |
| 9 | 857421 | 999969 | 857451 | 1142548 | 51 | 142578 | 00000 |
| 10 | 857756 | 999968 | 857787 | 1142212 | 50 | 142243 | 00000 |
| 11 | 858089 | 999968 | 858120 | 1141879 | 49 | 141910 | 00000 |
| 12 | 858419 | 999967 | 858451 | 1141548 | 48 | 141580 | 00000 |
| 13 | 858746 | 999967 | 858779 | 1141220 | 47 | 141253 | 00000 |
| 14 | 859072 | 999967 | 859105 | 1140894 | 46 | 140927 | 00000 |
| 15 | 859394 | 999966 | 859428 | 1140571 | 45 | 140605 | 00000 |
| 16 | 859715 | 999966 | 859749 | 1140250 | 44 | 140284 | 00000 |
| 17 | 860033 | 999965 | 860067 | 1139932 | 43 | 139966 | 00000 |
| 18 | 860348 | 999965 | 860383 | 1139616 | 42 | 139651 | 00000 |
| 19 | 860662 | 999964 | 860697 | 1139302 | 41 | 139337 | 00000 |
| 20 | 860973 | 999963 | 861009 | 1138990 | 40 | 139026 | 00000 |
| 21 | 861282 | 999963 | 861318 | 1138681 | 39 | 138717 | 00000 |
| 22 | 861589 | 999962 | 861626 | 1138372 | 38 | 138410 | 00000 |
| 23 | 861893 | 999962 | 861931 | 1138068 | 37 | 138 05 | 00000 |
| 24 | 862196 | 999961 | 862234 | 1137765 | 36 | 137803 | 00000 |
| 25 | 862496 | 999961 | 862535 | 1137464 | 35 | 137503 | 00000 |
| 26 | 862794 | 999960 | 862834 | 1137165 | 34 | 137205 | 00000 |
| 27 | 863091 | 999960 | 863130 | 1136869 | 33 | 136908 | 00000 |
| 28 | 863385 | 999959 | 863425 | 1136574 | 32 | 136914 | 00000 |
| 29 | 863677 | 999959 | 863718 | 1136281 | 31 | 136322 | 00000 |
| 30 | 863967 | 999958 | 864009 | 1135990 | 30 | 136032 | 00000 |
| ° | Sine compl. | Sine. | Tangent comple. | Tang. | 87 | | |

| Sine. | Sine comple. | Tang. | Tangent compem. | | com. ar. of fine. | com. ar of tan. cō |
|---|---|---|---|---|---|---|
| 363967 | 999958 | 864009 | 1135990 | 30 | 136032 | 000041 |
| 364256 | 999958 | 864298 | 1135701 | 29 | 135743 | 000041 |
| 364542 | 999957 | 864585 | 1135414 | 28 | 135457 | 000042 |
| 364827 | 999956 | 864870 | 1135129 | 27 | 135172 | 000043 |
| 365110 | 999956 | 865153 | 1134848 | 26 | 134889 | 000043 |
| 365391 | 999955 | 865435 | 1134564 | 25 | 134608 | 000044 |
| 365670 | 999955 | 865714 | 1134285 | 24 | 134329 | 000044 |
| 365947 | 999954 | 865992 | 1134007 | 23 | 134052 | 000045 |
| 366223 | 999954 | 866268 | 1133731 | 22 | 133776 | 000045 |
| 366495 | 999953 | 366543 | 1133456 | 21 | 133503 | 000046 |
| 366768 | 999952 | 866815 | 1133184 | 20 | 133231 | 000047 |
| 367039 | 999952 | 867086 | 1132913 | 19 | 132960 | 000047 |
| 367308 | 999951 | 867356 | 1132643 | 18 | 132691 | 000048 |
| 367575 | 999951 | 867623 | 1132376 | 17 | 132424 | 000048 |
| 3678 0 | 999950 | 867889 | 1132110 | 16 | 132159 | 000049 |
| 368104 | 999949 | 868154 | 1131845 | 15 | 131895 | 000050 |
| 368366 | 999949 | 868417 | 1131582 | 14 | 131633 | 000050 |
| 368627 | 999948 | 868678 | 1131321 | 13 | 131372 | 000051 |
| 368886 | 999948 | 868938 | 1131061 | 12 | 131113 | 000051 |
| 369143 | 999947 | 869196 | 1130803 | 11 | 130856 | 000052 |
| 369399 | 999946 | 869452 | 1130547 | 10 | 130600 | 000053 |
| 369654 | 999946 | 869708 | 1130291 | 9 | 130345 | 000053 |
| 369907 | 999945 | 869961 | 1130038 | 8 | 130092 | 000054 |
| 370158 | 999944 | 870213 | 1129786 | 7 | 129841 | 000055 |
| 370408 | 999944 | 870464 | 1129535 | 6 | 129591 | 000055 |
| 370657 | 999943 | 870713 | 1129286 | 5 | 129342 | 000056 |
| 370904 | 999943 | 870961 | 1129038 | 4 | 129095 | 000056 |
| 371150 | 999942 | 871208 | 1128791 | 3 | 128849 | 000057 |
| 371395 | 999941 | 871453 | 1128546 | 2 | 128604 | 000058 |
| 371638 | 999941 | 871697 | 1128302 | 1 | 128361 | 000058 |
| 371880 | 999940 | 871939 | 1128060 | 0 | 128119 | 000059 |
| Sine comple. | Sine. | Tangent complem | Tang. | | | |

| 3 | Sine. | Sine compl. | Tang | Tangent comple. | | com. of fine. | com. of fin cl |
|---|---|---|---|---|---|---|---|
| 0 | 871880 | 999940 | 871939 | 1128060 | 30 | 128119 | 00005 |
| 1 | 872120 | 999939 | 872180 | 1127819 | 29 | 127879 | 00006 |
| 2 | 872359 | 999939 | 872420 | 1127579 | 28 | 127640 | 00006 |
| 3 | 872597 | 999938 | 872658 | 1127341 | 27 | 127402 | 00006 |
| 4 | 872833 | 999937 | 872895 | 1127104 | 26 | 127166 | 00006 |
| 5 | 873068 | 999937 | 873131 | 1126868 | 25 | 126931 | 00006 |
| 6 | 873302 | 999936 | 873366 | 1126633 | 24 | 126697 | 00006 |
| 7 | 873535 | 999935 | 873599 | 1126400 | 23 | 126464 | 00006 |
| 8 | 873766 | 999935 | 873831 | 1126168 | 22 | 126233 | 00006 |
| 9 | 873996 | 999934 | 874062 | 1125937 | 21 | 126003 | 00006 |
| 10 | 874225 | 999933 | 874292 | 1125707 | 20 | 125774 | 00006 |
| 11 | 874453 | 999932 | 874520 | 1125479 | 19 | 125546 | 00006 |
| 12 | 874680 | 999932 | 874747 | 1125252 | 18 | 125319 | 00006 |
| 13 | 874905 | 999931 | 874974 | 1125026 | 17 | 125094 | 00006 |
| 14 | 875129 | 999930 | 875198 | 1124801 | 16 | 124870 | 00006 |
| 15 | 875352 | 999930 | 875422 | 1124577 | 15 | 124647 | 00006 |
| 16 | 875574 | 999929 | 875645 | 1124354 | 14 | 124425 | 00007 |
| 17 | 875795 | 999928 | 875866 | 1124133 | 13 | 124204 | 00007 |
| 18 | 876015 | 999927 | 876087 | 1123912 | 12 | 123984 | 00007 |
| 19 | 876233 | 999927 | 876306 | 1123693 | 11 | 123766 | 00007 |
| 20 | 876451 | 999926 | 876524 | 1123475 | 10 | 123548 | 00007 |
| 21 | 876667 | 999925 | 876741 | 1123258 | 9 | 123332 | 00007 |
| 22 | 876882 | 999924 | 876957 | 1123042 | 8 | 123117 | 00007 |
| 23 | 877096 | 999924 | 877172 | 1122827 | 7 | 122903 | 00007 |
| 24 | 877310 | 999923 | 877386 | 1122613 | 6 | 122689 | 00007 |
| 25 | 877522 | 999922 | 877599 | 1122400 | 5 | 122477 | 00007 |
| 26 | 877733 | 999921 | 877811 | 1122188 | 4 | 122266 | 00007 |
| 27 | 877943 | 999921 | 878022 | 1121977 | 3 | 122056 | 00007 |
| 28 | 878152 | 999920 | 878231 | 1121768 | 2 | 121847 | 00007 |
| 29 | 878360 | 999919 | 878440 | 1121559 | 1 | 121630 | 00007 |
| 30 | 878567 | 999918 | 878648 | 1121351 | 0 | 121432 | 00007 |
| | Sine compl. | Sine. | Tangent comple. | Tang. | 86 | | |

| Sine | Sine comple. | Tang. | Tangent compem. | | com. ar. of sine. | com. ar. of sin. co. |
|---|---|---|---|---|---|---|
| 378567 | 999918 | 878648 | 1121351 | 60 | 121432 | 000081 |
| 378773 | 999918 | 878855 | 1121144 | 59 | 121226 | 000081 |
| 378978 | 999917 | 879061 | 1120938 | 58 | 121021 | 000082 |
| 379182 | 999916 | 879266 | 1120733 | 57 | 120817 | 000083 |
| 379385 | 999915 | 879470 | 1120529 | 56 | 120614 | 000084 |
| 379588 | 999915 | 879673 | 1120326 | 55 | 120411 | 000084 |
| 379789 | 999914 | 879875 | 1120124 | 54 | 120210 | 000085 |
| 379989 | 999913 | 880079 | 1119923 | 53 | 120010 | 000086 |
| 380189 | 999912 | 880276 | 1119723 | 52 | 119810 | 000087 |
| 380387 | 999911 | 880475 | 1119524 | 51 | 119612 | 000088 |
| 380585 | 999911 | 880674 | 1119325 | 50 | 119414 | 000088 |
| 380781 | 999910 | 880871 | 1119128 | 49 | 119218 | 000089 |
| 380977 | 999909 | 881068 | 1118931 | 48 | 119022 | 000090 |
| 381172 | 999908 | 881264 | 1118735 | 47 | 118827 | 000091 |
| 381366 | 999907 | 881457 | 1118541 | 46 | 118633 | 000092 |
| 381559 | 999906 | 881652 | 1118347 | 45 | 118440 | 000093 |
| 381752 | 999906 | 881846 | 1118153 | 44 | 118247 | 000093 |
| 381943 | 999905 | 882038 | 1117961 | 43 | 118056 | 000094 |
| 382134 | 999904 | 882229 | 1117770 | 42 | 117865 | 000095 |
| 382324 | 999903 | 882420 | 1117579 | 41 | 117675 | 000096 |
| 382512 | 999902 | 882610 | 1117389 | 40 | 117487 | 000097 |
| 382701 | 999901 | 882799 | 1117200 | 39 | 117298 | 000098 |
| 382888 | 999901 | 882987 | 1117012 | 38 | 116111 | 000098 |
| 383074 | 999900 | 883174 | 1116825 | 37 | 116925 | 000099 |
| 383260 | 999899 | 883361 | 1116388 | 36 | 116739 | 000100 |
| 383445 | 999898 | 883547 | 1116452 | 35 | 116554 | 000101 |
| 383629 | 999897 | 883732 | 1116267 | 34 | 116370 | 000102 |
| 383813 | 999896 | 883916 | 1116083 | 33 | 116186 | 000103 |
| 383995 | 999895 | 884099 | 1115900 | 32 | 116003 | 000104 |
| 384177 | 999894 | 884282 | 1115717 | 31 | 115822 | 000105 |
| 384358 | 999891 | 884464 | 1115535 | 30 | 125641 | 000105 |
| Sine comple. | Sine. | Tangent complem. | Tang. | | 86 | |

| 4 | Sine. | Sine comple. | Tang. | Tangent complem. | | com. of fine | com. of fin. |
|---|---|---|---|---|---|---|---|
| 0 | 884358 | 999894 | 884464 | 1115535 | 60 | 115641 | 00010 |
| 1 | 884538 | 999893 | 884645 | 1115354 | 59 | 115461 | 00010 |
| 2 | 884718 | 999892 | 884825 | 1115174 | 58 | 115281 | 00010 |
| 3 | 884897 | 999891 | 885005 | 1114994 | 57 | 115102 | 00010 |
| 4 | 885075 | 999890 | 885184 | 1114815 | 56 | 114924 | 00010 |
| 5 | 885252 | 999889 | 885362 | 1114637 | 55 | 114747 | 00011 |
| 6 | 885429 | 999888 | 885540 | 1114459 | 54 | 114570 | 00011 |
| 7 | 885604 | 999887 | 885717 | 1114282 | 53 | 114395 | 00011 |
| 8 | 885780 | 999886 | 885893 | 1114106 | 52 | 114219 | 00011 |
| 9 | 885954 | 999885 | 886068 | 1113931 | 51 | 114045 | 00011 |
| 10 | 886128 | 999885 | 886243 | 1113756 | 50 | 113871 | 00011 |
| 11 | 886301 | 999884 | 886417 | 1113582 | 49 | 113698 | 00011 |
| 12 | 886473 | 999883 | 886590 | 1113409 | 48 | 113526 | 00011 |
| 13 | 886645 | 999882 | 886763 | 1113236 | 47 | 113354 | 00011 |
| 14 | 886816 | 999881 | 886935 | 1113064 | 46 | 113183 | 00011 |
| 15 | 886986 | 999880 | 887106 | 1112893 | 45 | 113013 | 00011 |
| 16 | 887156 | 999879 | 887276 | 1112723 | 44 | 112843 | 00012 |
| 17 | 887325 | 999878 | 887446 | 1112553 | 43 | 112674 | 00012 |
| 18 | 887493 | 999877 | 887616 | 1112383 | 42 | 112506 | 00012 |
| 19 | 887661 | 999876 | 887784 | 1112215 | 41 | 112338 | 00012 |
| 20 | 887828 | 999875 | 887952 | 1112047 | 40 | 112171 | 00012 |
| 21 | 887994 | 999874 | 888120 | 1111879 | 39 | 112005 | 00012 |
| 22 | 888160 | 999873 | 888286 | 1111713 | 38 | 111839 | 00012 |
| 23 | 888325 | 999872 | 888453 | 1111546 | 37 | 111674 | 00012 |
| 24 | 888490 | 999871 | 888618 | 1111381 | 36 | 111509 | 00012 |
| 25 | 888654 | 999870 | 888783 | 1111216 | 35 | 111345 | 00012 |
| 26 | 888817 | 999869 | 888947 | 1111052 | 34 | 111182 | 00013 |
| 27 | 888980 | 999868 | 889111 | 1110888 | 33 | 111019 | 00013 |
| 28 | 889142 | 999867 | 889274 | 1110725 | 32 | 110857 | 00013 |
| 29 | 889303 | 999866 | 889436 | 1110563 | 31 | 110696 | 00013 |
| 30 | 889464 | 999865 | 889598 | 1110401 | 30 | 110535 | 00013 |
| | Sine comple. | Sine. | Tangent. complem | Tang. | 85 | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com. of fine | com. of fin. ck. |
|---|---|---|---|---|---|---|
| 889464 | 999865 | 889598 | 1110401 | 30 | 110535 | 000134 |
| 889624 | 999864 | 889759 | 1110240 | 29 | 110375 | 000135 |
| 889784 | 999863 | 889920 | 1110079 | 28 | 110215 | 000136 |
| 889943 | 999862 | 890080 | 1109919 | 27 | 110056 | 000137 |
| 890101 | 999861 | 890239 | 1109760 | 26 | 109898 | 000138 |
| 890259 | 999860 | 890398 | 1109601 | 25 | 109740 | 000139 |
| 890416 | 999859 | 890556 | 1109443 | 24 | 109583 | 000140 |
| 890573 | 999858 | 890714 | 1109285 | 23 | 109426 | 000141 |
| 890729 | 999857 | 890871 | 1109128 | 22 | 109270 | 000142 |
| 890885 | 999856 | 891028 | 1108971 | 21 | 109114 | 000143 |
| 891040 | 999855 | 891184 | 1108815 | 20 | 108959 | 000144 |
| 891194 | 999854 | 891340 | 1108659 | 19 | 108805 | 000145 |
| 891348 | 999853 | 891495 | 1108504 | 18 | 108651 | 000146 |
| 891502 | 999852 | 891649 | 1108350 | 17 | 108497 | 000147 |
| 891655 | 999851 | 891803 | 1108196 | 16 | 108344 | 000148 |
| 901807 | 999850 | 891956 | 1108043 | 15 | 108192 | 000149 |
| 891959 | 999849 | 892109 | 1107890 | 14 | 108040 | 000150 |
| 892110 | 999848 | 892261 | 1107738 | 13 | 107889 | 000151 |
| 892261 | 999847 | 892413 | 1107586 | 12 | 107738 | 000152 |
| 892411 | 999846 | 892564 | 1107435 | 11 | 107588 | 000153 |
| 892560 | 999845 | 892715 | 1107284 | 10 | 107439 | 000154 |
| 892710 | 999844 | 892865 | 1107134 | 9 | 107289 | 000155 |
| 892858 | 999843 | 893015 | 1106984 | 8 | 107141 | 000156 |
| 893006 | 999842 | 893164 | 1106835 | 7 | 106993 | 000157 |
| 893154 | 999840 | 893313 | 1106686 | 6 | 106845 | 000159 |
| 893301 | 999839 | 893461 | 1106538 | 5 | 106698 | 000160 |
| 893448 | 999838 | 893609 | 1106390 | 4 | 106551 | 000161 |
| 893594 | 999837 | 893756 | 1106243 | 3 | 106405 | 000162 |
| 893739 | 999836 | 893903 | 1106096 | 2 | 106260 | 000163 |
| 893884 | 999835 | 894049 | 1105950 | 1 | 106115 | 000164 |
| 894029 | 999834 | 894195 | 1105804 | 0 | 105970 | 000165 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | 85 | |

| 5 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar. of sine | com. ar. of sin. |
|---|---|---|---|---|---|---|---|
| 0 | 894029 | 999834 | 894195 | 1105804 | 60 | 105970 | 00016 |
| 1 | 894173 | 999833 | 894340 | 1105659 | 59 | 105826 | 00016 |
| 2 | 894317 | 999832 | 894485 | 1105514 | 58 | 105682 | 00016 |
| 3 | 894460 | 999831 | 894629 | 1105370 | 57 | 105539 | 00016 |
| 4 | 894603 | 999829 | 894773 | 1105226 | 56 | 105396 | 00017 |
| 5 | 894745 | 999828 | 894916 | 1105083 | 55 | 105254 | 00017 |
| 6 | 894887 | 999827 | 895059 | 1104940 | 54 | 105112 | 00017 |
| 7 | 895028 | 999826 | 895202 | 1104797 | 53 | 104971 | 00017 |
| 8 | 895169 | 999825 | 895344 | 1104655 | 52 | 104830 | 00017 |
| 9 | 895309 | 999824 | 895484 | 1104514 | 51 | 104690 | 00017 |
| 10 | 895449 | 999823 | 895626 | 1104373 | 50 | 104550 | 00017 |
| 11 | 895589 | 999822 | 895767 | 1104232 | 49 | 104410 | 00017 |
| 12 | 895728 | 999820 | 895907 | 1104092 | 48 | 104271 | 00017 |
| 13 | 895867 | 999819 | 896047 | 1103952 | 47 | 104132 | 00018 |
| 14 | 896005 | 999818 | 896186 | 1103813 | 46 | 103994 | 00018 |
| 15 | 896142 | 999817 | 896325 | 1103674 | 45 | 103857 | 00018 |
| 16 | 896280 | 999816 | 896463 | 1103536 | 44 | 103719 | 00018 |
| 17 | 896416 | 999815 | 896601 | 1103398 | 43 | 103583 | 00018 |
| 18 | 896553 | 999813 | 896739 | 1103260 | 42 | 103446 | 00018 |
| 19 | 896689 | 999812 | 896876 | 1103123 | 41 | 103310 | 00018 |
| 20 | 896824 | 999811 | 897013 | 1102986 | 40 | 103175 | 00018 |
| 21 | 896959 | 999810 | 897149 | 1102850 | 39 | 103040 | 00018 |
| 22 | 897094 | 999809 | 897285 | 1102714 | 38 | 102905 | 00019 |
| 23 | 897228 | 999808 | 897420 | 1102579 | 37 | 102771 | 00019 |
| 24 | 897362 | 999806 | 897555 | 1102444 | 36 | 102637 | 00019 |
| 25 | 897496 | 999805 | 897690 | 1102309 | 35 | 102503 | 00019 |
| 26 | 897629 | 999804 | 897824 | 1102175 | 34 | 102370 | 00019 |
| 27 | 897761 | 999803 | 897958 | 1102041 | 33 | 102238 | 00019 |
| 28 | 897894 | 999802 | 898092 | 1101907 | 32 | 102105 | 00019 |
| 29 | 898025 | 999800 | 898225 | 1101774 | 31 | 101974 | 00019 |
| 30 | 898157 | 999799 | 898357 | 1101642 | 30 | 101842 | 00020 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 84 | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of sine | com. ar of tan. |
|---|---|---|---|---|---|---|
| 898157 | 999799 | 898357 | 1101642 | 30 | 101842 | 000200 |
| 898288 | 999798 | 898489 | 1101510 | 29 | 101711 | 000201 |
| 898418 | 999797 | 898621 | 1101378 | 28 | 101581 | 000202 |
| 898549 | 999795 | 898753 | 1101246 | 27 | 101450 | 000204 |
| 898678 | 999794 | 898884 | 1101115 | 26 | 101321 | 000205 |
| 898808 | 999793 | 899014 | 1100985 | 25 | 101191 | 000206 |
| 898937 | 999792 | 899145 | 1100854 | 24 | 101062 | 000207 |
| 899066 | 999790 | 899275 | 1100724 | 23 | 100933 | 000209 |
| 899194 | 999789 | 899404 | 1100595 | 22 | 100805 | 000210 |
| 899322 | 999788 | 899533 | 1100466 | 21 | 100677 | 000211 |
| 899449 | 999787 | 899662 | 1100337 | 20 | 100550 | 000212 |
| 899576 | 999785 | 899790 | 1100209 | 19 | 100423 | 000214 |
| 899703 | 999784 | 899918 | 1100081 | 18 | 100296 | 000215 |
| 899829 | 999783 | 900046 | 1099953 | 17 | 100170 | 000216 |
| 899855 | 999782 | 900173 | 1099826 | 16 | 100044 | 000217 |
| 900081 | 999780 | 900300 | 1099699 | 15 | 099918 | 000219 |
| 900206 | 999779 | 900427 | 1099572 | 14 | 099792 | 000220 |
| 900331 | 999778 | 900553 | 1099446 | 13 | 099668 | 000221 |
| 900456 | 999777 | 900679 | 1099320 | 12 | 099543 | 000222 |
| 900580 | 999775 | 900804 | 1099195 | 11 | 099419 | 000224 |
| 900704 | 999774 | 900929 | 1099070 | 10 | 099295 | 000225 |
| 900827 | 999773 | 901054 | 1098945 | 9 | 099172 | 000226 |
| 900950 | 999771 | 901179 | 1098820 | 8 | 099049 | 000228 |
| 901073 | 999770 | 901303 | 1098696 | 7 | 098926 | 000229 |
| 901196 | 999769 | 901426 | 1098573 | 6 | 098803 | 000230 |
| 901318 | 999768 | 901550 | 1098449 | 5 | 098681 | 000231 |
| 901439 | 999766 | 901673 | 1098326 | 4 | 098560 | 000233 |
| 901561 | 999765 | 901795 | 1098204 | 3 | 098438 | 000234 |
| 901682 | 999764 | 901918 | 1098081 | 2 | 098317 | 000235 |
| 901803 | 999762 | 902040 | 1097959 | 1 | 098196 | 000237 |
| 901923 | 999761 | 902162 | 1097837 | 0 | 098076 | 000238 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| 6 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. or of sine. | com. of fa. |
|---|---|---|---|---|---|---|---|
| 0 | 901923 | 999761 | 902162 | 1097837 | 60 | 098076 | 000 |
| 1 | 902043 | 999760 | 902283 | 1097716 | 59 | 097956 | 000 |
| 2 | 902163 | 999758 | 902404 | 1097595 | 58 | 097836 | 000 |
| 3 | 902282 | 999757 | 902525 | 1097474 | 57 | 097717 | 000 |
| 4 | 902401 | 999756 | 902645 | 1097354 | 56 | 097598 | 000 |
| 5 | 902520 | 999754 | 902765 | 1097234 | 55 | 097479 | 000 |
| 6 | 902638 | 999753 | 902885 | 1097114 | 54 | 097361 | 000 |
| 7 | 902756 | 999752 | 903004 | 1096995 | 53 | 097243 | 000 |
| 8 | 902874 | 999750 | 903123 | 1096876 | 52 | 097125 | 000 |
| 9 | 902991 | 999749 | 903242 | 1096757 | 51 | 097008 | 000 |
| 10 | 903108 | 999747 | 903360 | 1096639 | 50 | 096891 | 000 |
| 11 | 903225 | 999746 | 903479 | 1096520 | 49 | 096774 | 000 |
| 12 | 903342 | 999745 | 903596 | 1096403 | 48 | 96657 | 000 |
| 13 | 903458 | 999743 | 903714 | 1096285 | 47 | 096541 | 000 |
| 14 | 903574 | 999742 | 903831 | 1096168 | 46 | 096425 | 000 |
| 15 | 903689 | 999741 | 903948 | 1096051 | 45 | 096310 | 000 |
| 16 | 903804 | 999739 | 904065 | 1095934 | 44 | 096195 | 000 |
| 17 | 903919 | 999738 | 904181 | 1095818 | 43 | 096080 | 000 |
| 18 | 904034 | 999336 | 904297 | 1095702 | 42 | 095965 | 000 |
| 19 | 904148 | 999735 | 904412 | 1095587 | 41 | 09585 | 000 |
| 20 | 904262 | 999734 | 904528 | 1095471 | 40 | 095737 | 000 |
| 21 | 904376 | 999732 | 904643 | 1095356 | 39 | 095623 | 000 |
| 22 | 904489 | 999731 | 904758 | 1095241 | 38 | 095510 | 000 |
| 23 | 904602 | 999729 | 904872 | 1095127 | 37 | 095397 | 000 |
| 24 | 904715 | 999728 | 904986 | 1095013 | 36 | 095284 | 000 |
| 25 | 904827 | 999727 | 905100 | 1094899 | 35 | 095172 | 000 |
| 26 | 904940 | 999725 | 905214 | 1094785 | 34 | 095059 | 000 |
| 27 | 905051 | 999724 | 905327 | 1094670 | 33 | 094948 | 000 |
| 28 | 905163 | 999722 | 905440 | 1094559 | 32 | 094836 | 000 |
| 29 | 905274 | 999721 | 905553 | 1094446 | 31 | 094725 | 000 |
| 30 | 905385 | 999719 | 905665 | 1094334 | 30 | 094614 | 000 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 83 | | |

| Sine | Sine Complem. | Tang. | Tangent Complem. | | Com. ar. of Sine. | Com. ar. of Si. co. |
|---|---|---|---|---|---|---|
| 905385 | 999719 | 905665 | 1094334 | 30 | 094614 | 000280 |
| 905496 | 999718 | 905778 | 1094221 | 29 | 094503 | 000281 |
| 905607 | 999717 | 905890 | 1094109 | 28 | 094392 | 000282 |
| 905717 | 999715 | 906001 | 1093998 | 27 | 094282 | 000284 |
| 905827 | 999714 | 906112 | 1093887 | 26 | 094172 | 000285 |
| 905936 | 999712 | 906224 | 1093775 | 25 | 094063 | 000287 |
| 906046 | 999711 | 906334 | 1093665 | 24 | 093953 | 000288 |
| 906155 | 999709 | 906445 | 1093554 | 23 | 093844 | 000290 |
| 906263 | 999708 | 906555 | 1093444 | 22 | 093736 | 000291 |
| 906372 | 999706 | 906665 | 1093334 | 21 | 093627 | 000293 |
| 906480 | 999705 | 906775 | 1093224 | 20 | 093519 | 000294 |
| 906588 | 999703 | 906884 | 1093115 | 19 | 093411 | 000296 |
| 906696 | 999702 | 906993 | 1093006 | 18 | 093303 | 000297 |
| 906803 | 999700 | 907102 | 1092897 | 17 | 093196 | 000299 |
| 906910 | 999699 | 907211 | 1092788 | 16 | 093089 | 000300 |
| 907017 | 999697 | 907319 | 1092680 | 15 | 092982 | 000302 |
| 907124 | 999696 | 907427 | 1092572 | 14 | 092875 | 000303 |
| 907230 | 999694 | 907535 | 1092464 | 13 | 092769 | 000305 |
| 907336 | 999693 | 907643 | 1092356 | 12 | 092663 | 000306 |
| 907442 | 999691 | 907750 | 1092249 | 11 | 092557 | 000308 |
| 907547 | 999690 | 907857 | 1092142 | 10 | 092452 | 000309 |
| 907653 | 999688 | 907964 | 1092035 | 9 | 092346 | 000311 |
| 907758 | 999687 | 908070 | 1091929 | 8 | 092241 | 000312 |
| 907863 | 999685 | 908177 | 1091822 | 7 | 092136 | 000314 |
| 907967 | 999684 | 908287 | 1091716 | 6 | 092032 | 000315 |
| 908071 | 999682 | 908389 | 1091610 | 5 | 091928 | 000317 |
| 908175 | 999681 | 908494 | 1091505 | 4 | 091824 | 000318 |
| 908279 | 999679 | 908599 | 1091400 | 3 | 091720 | 000320 |
| 908383 | 999678 | 908705 | 1091294 | 2 | 091616 | 000321 |
| 908486 | 999676 | 908809 | 1091190 | 1 | 91513 | 000323 |
| 908589 | 999675 | 908914 | 1091085 | 0 | 091410 | 000324 |
| Sine Complem | Sine. | Tangent Complem | Tang. 183. | | | |

| 7 | Sine. | Sine Comple. | Tang. | Tangent Comple. | | Cos. ar. of Sine. | Cos. ar. of Tang. |
|---|---|---|---|---|---|---|---|
| 0 | 908589 | 999675 | 908914 | 1091085 | 60 | 091410 | 00032 |
| 1 | 908692 | 999673 | 909018 | 1090981 | 59 | 091307 | 00032 |
| 2 | 908794 | 999671 | 909122 | 1090877 | 58 | 091205 | 00032 |
| 3 | 908897 | 999670 | 909226 | 1090773 | 57 | 091103 | 00032 |
| 4 | 908999 | 999668 | 909330 | 1090669 | 56 | 091000 | 00033 |
| 5 | 909100 | 999667 | 909433 | 1090566 | 55 | 090899 | 00033 |
| 6 | 909202 | 999665 | 909536 | 1090463 | 54 | 090797 | 00033 |
| 7 | 909303 | 999664 | 909639 | 1090360 | 53 | 090696 | 00033 |
| 8 | 909404 | 999662 | 909742 | 1090257 | 52 | 090595 | 00033 |
| 9 | 909505 | 999660 | 909844 | 1090155 | 51 | 090494 | 00033 |
| 10 | 909606 | 999659 | 909946 | 1090053 | 50 | 090393 | 00034 |
| 11 | 909706 | 999657 | 910048 | 1089951 | 49 | 090293 | 00034 |
| 12 | 909806 | 999656 | 910150 | 1089849 | 48 | 090193 | 00034 |
| 13 | 909906 | 999654 | 910251 | 1089748 | 47 | 090093 | 00034 |
| 14 | 910006 | 999652 | 910353 | 1089646 | 46 | 089993 | 00034 |
| 15 | 910105 | 999651 | 910454 | 1089545 | 45 | 089894 | 00034 |
| 16 | 910204 | 999649 | 910555 | 1089445 | 44 | 089795 | 00035 |
| 17 | 910303 | 999648 | 910655 | 1089344 | 43 | 089696 | 00035 |
| 18 | 910402 | 999646 | 910755 | 1089244 | 42 | 089597 | 00035 |
| 19 | 910500 | 999644 | 910856 | 1089143 | 41 | 089499 | 00035 |
| 20 | 910599 | 999643 | 910955 | 1089044 | 40 | 089400 | 00035 |
| 21 | 910697 | 999641 | 911055 | 1088944 | 39 | 089302 | 00035 |
| 22 | 910795 | 999640 | 911155 | 1088844 | 38 | 089204 | 00035 |
| 23 | 910892 | 999638 | 911254 | 1088745 | 37 | 089107 | 00036 |
| 24 | 910990 | 999636 | 911353 | 1088646 | 36 | 089009 | 00036 |
| 25 | 911087 | 999635 | 911452 | 1088547 | 35 | 088912 | 00036 |
| 26 | 911184 | 999633 | 911550 | 1088449 | 34 | 088815 | 00036 |
| 27 | 911280 | 999631 | 911649 | 1088350 | 33 | 088719 | 00036 |
| 28 | 911377 | 999630 | 911747 | 1088252 | 32 | 088622 | 00036 |
| 29 | 911473 | 999628 | 911845 | 1088154 | 31 | 088526 | 00037 |
| 30 | 911569 | 999626 | 911942 | 1088057 | 30 | 088430 | 00037 |
| | Sine Compl. | Sine. | Tangent Comple. | Tang. | 182 | | |

| ° | Sine. | Sine comple. | Tang. | Tangent comple. | | com. at of sine | com. at of sine cô |
|---|---|---|---|---|---|---|---|
| 30 | 911569 | 999626 | 911942 | 1088057 | 30 | 088430 | 000373 |
| 31 | 911665 | 999625 | 912040 | 1087959 | 29 | 088334 | 000374 |
| 32 | 911761 | 999623 | 912137 | 1087862 | 28 | 088238 | 000376 |
| 33 | 911856 | 999621 | 912234 | 1087765 | 27 | 088143 | 000378 |
| 34 | 911951 | 999620 | 912331 | 1087668 | 26 | 088048 | 000379 |
| 35 | 912046 | 999618 | 912428 | 1087571 | 25 | 087953 | 000381 |
| 36 | 912141 | 999616 | 912524 | 1087475 | 24 | 087858 | 000383 |
| 37 | 912236 | 999615 | 912621 | 1087378 | 23 | 087763 | 000384 |
| 38 | 912330 | 999613 | 912717 | 1087282 | 22 | 087669 | 000386 |
| 39 | 912424 | 999611 | 912813 | 1087186 | 21 | 087575 | 000388 |
| 40 | 912518 | 999610 | 912908 | 1087091 | 20 | 087481 | 000389 |
| 41 | 912612 | 999608 | 913004 | 1086995 | 19 | 087387 | 000391 |
| 42 | 912706 | 999606 | 913099 | 1086900 | 18 | 087294 | 000393 |
| 43 | 912799 | 999604 | 913194 | 1086805 | 17 | 087200 | 000395 |
| 44 | 912892 | 999603 | 913289 | 1086710 | 16 | 087107 | 000396 |
| 45 | 912985 | 999601 | 913383 | 1086616 | 15 | 087014 | 000398 |
| 46 | 913078 | 999599 | 913478 | 1086521 | 14 | 086921 | 000400 |
| 47 | 913170 | 999598 | 913572 | 1086427 | 13 | 086829 | 000401 |
| 48 | 913262 | 999596 | 913666 | 1086333 | 12 | 086737 | 000403 |
| 49 | 913355 | 999594 | 913760 | 1086239 | 11 | 086644 | 000405 |
| 50 | 913447 | 999592 | 913854 | 1086145 | 10 | 086552 | 000407 |
| 51 | 913538 | 999591 | 913947 | 1086052 | 9 | 086461 | 000408 |
| 52 | 913630 | 999589 | 914040 | 1085959 | 8 | 086369 | 000410 |
| 53 | 913721 | 999587 | 914134 | 1085866 | 7 | 086278 | 000412 |
| 54 | 913812 | 999585 | 914226 | 1085773 | 6 | 086187 | 000414 |
| 55 | 913903 | 999584 | 914319 | 1085680 | 5 | 086096 | 000415 |
| 56 | 913994 | 999582 | 914412 | 1085587 | 4 | 086005 | 000417 |
| 57 | 914085 | 999580 | 914504 | 1085495 | 3 | 085914 | 000419 |
| 58 | 914175 | 999578 | 914596 | 1085403 | 2 | 085824 | 000421 |
| 59 | 914265 | 999577 | 914688 | 1085311 | 1 | 085734 | 000422 |
| 60 | 914355 | 999575 | 914780 | 1085219 | 0 | 085644 | 000424 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 82 | | |

| 8 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. to of sine | com. to of sin. of |
|---|---|---|---|---|---|---|---|
| 0 | 914355 | 999575 | 914780 | 1085219 | 60 | 085644 | 000424 |
| 1 | 914445 | 999573 | 914871 | 1085128 | 59 | 085554 | 000426 |
| 2 | 914534 | 999571 | 914963 | 1085036 | 58 | 085465 | 000428 |
| 3 | 914624 | 999569 | 915054 | 1084945 | 57 | 085375 | 000430 |
| 4 | 914713 | 999568 | 915145 | 1084854 | 56 | 085286 | 000431 |
| 5 | 914802 | 999566 | 915236 | 1084763 | 55 | 085197 | 000433 |
| 6 | 914891 | 999564 | 915326 | 1084673 | 54 | 085108 | 000435 |
| 7 | 914980 | 999562 | 915417 | 1084582 | 53 | 085019 | 000437 |
| 8 | 915068 | 999560 | 915507 | 1084492 | 52 | 084931 | 000439 |
| 9 | 915156 | 999559 | 915597 | 1084402 | 51 | 084843 | 000440 |
| 10 | 915245 | 999557 | 915687 | 1084312 | 50 | 084754 | 000442 |
| 11 | 915333 | 999555 | 915777 | 1084222 | 49 | 084666 | 000444 |
| 12 | 915420 | 999553 | 915867 | 1084132 | 48 | 084579 | 000446 |
| 13 | 915508 | 999551 | 915956 | 1084043 | 47 | 084491 | 000448 |
| 14 | 915595 | 999550 | 916045 | 1083954 | 46 | 084404 | 000449 |
| 15 | 915682 | 999548 | 916134 | 1083865 | 45 | 084317 | 000451 |
| 16 | 915770 | 999546 | 916223 | 1083776 | 44 | 084230 | 000453 |
| 17 | 915856 | 999544 | 916312 | 1083687 | 43 | 084143 | 000455 |
| 18 | 915943 | 999542 | 916400 | 1083599 | 42 | 084059 | 000457 |
| 19 | 916030 | 999540 | 916489 | 1083510 | 41 | 083969 | 000459 |
| 20 | 916116 | 999539 | 916577 | 1083422 | 40 | 083883 | 000460 |
| 21 | 916202 | 999537 | 916665 | 1083334 | 39 | 083797 | 000462 |
| 22 | 916288 | 999535 | 916753 | 1083246 | 38 | 083711 | 000464 |
| 23 | 916374 | 999533 | 916840 | 1083159 | 37 | 083625 | 000466 |
| 24 | 916459 | 999531 | 916929 | 1083071 | 36 | 083540 | 000468 |
| 25 | 916545 | 999529 | 917015 | 1082984 | 35 | 083454 | 000470 |
| 26 | 916630 | 999527 | 917102 | 1082897 | 34 | 083369 | 000472 |
| 27 | 916715 | 999525 | 917189 | 1082810 | 33 | 083284 | 000474 |
| 28 | 916800 | 999524 | 917276 | 1082723 | 32 | 083199 | 000475 |
| 29 | 916885 | 999522 | 917363 | 1082636 | 31 | 083114 | 000477 |
| 30 | 916970 | 999520 | 917449 | 1082550 | 30 | 083029 | 000479 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 81 | | |

| 81 | Sine. | Sine comp. | Tang. | Tangent comp. | | com. ar. of sine | com. ar. of tang. |
|---|---|---|---|---|---|---|---|
| 30 | 916970 | 999520 | 917449 | 1082550 | 30 | 083029 | 000479 |
| 31 | 917054 | 999518 | 917536 | 1082463 | 29 | 082945 | 000481 |
| 32 | 917138 | 999516 | 917622 | 1082377 | 28 | 082861 | 000483 |
| 33 | 917223 | 999514 | 917708 | 1082291 | 27 | 082776 | 000485 |
| 34 | 917306 | 999512 | 917794 | 1082205 | 26 | 082691 | 000487 |
| 35 | 917390 | 999510 | 917879 | 1082120 | 25 | 082609 | 000489 |
| 36 | 917474 | 999508 | 917965 | 1082034 | 24 | 082525 | 000491 |
| 37 | 917557 | 999507 | 918050 | 1081949 | 23 | 082442 | 000492 |
| 38 | 917641 | 999505 | 918136 | 1081863 | 22 | 082358 | 000494 |
| 39 | 917724 | 999503 | 918221 | 1081778 | 21 | 082275 | 000496 |
| 40 | 917807 | 999501 | 918305 | 1081694 | 20 | 082192 | 000498 |
| 41 | 917890 | 999499 | 918390 | 1081609 | 19 | 082109 | 000500 |
| 42 | 917972 | 999497 | 918475 | 1081524 | 18 | 082027 | 000502 |
| 43 | 918055 | 999495 | 918559 | 1081440 | 17 | 081944 | 000504 |
| 44 | 918137 | 999493 | 918643 | 1081856 | 16 | 081862 | 000506 |
| 45 | 918219 | 999491 | 918728 | 1081271 | 15 | 081780 | 000508 |
| 46 | 918301 | 999489 | 918811 | 1081188 | 14 | 081698 | 000510 |
| 47 | 918383 | 999487 | 918895 | 1081104 | 13 | 081616 | 000512 |
| 48 | 918465 | 999485 | 918979 | 1081020 | 12 | 081534 | 000514 |
| 49 | 918546 | 999483 | 919062 | 1080937 | 11 | 081453 | 000516 |
| 50 | 918628 | 999481 | 919146 | 1080853 | 10 | 081371 | 000518 |
| 51 | 918709 | 999479 | 919329 | 1080770 | 9 | 081290 | 000520 |
| 52 | 918790 | 999477 | 919312 | 1080687 | 8 | 081209 | 000522 |
| 53 | 918871 | 999475 | 919395 | 1080604 | 7 | 081128 | 000524 |
| 54 | 918951 | 999473 | 919478 | 1080521 | 6 | 081048 | 000526 |
| 55 | 919032 | 999471 | 919560 | 1080439 | 5 | 080967 | 000528 |
| 56 | 919112 | 999469 | 919643 | 1080356 | 4 | 080887 | 000530 |
| 57 | 919193 | 999467 | 919725 | 1080274 | 3 | 080806 | 000532 |
| 58 | 919273 | 999465 | 919807 | 1080192 | 2 | 080726 | 000534 |
| 59 | 919353 | 999463 | 919889 | 1080110 | 1 | 080646 | 000536 |
| 60 | 919433 | 999461 | 919971 | 1080028 | 0 | 080566 | 000538 |
| | Sine compl. | Sine. | Tangent compl. | Tang. | 81 | | |

| 9 | Sine. | Sine comp. | Tang. | Tangent comp. | | com. ar. of sine | com. ar. of sin cō |
|---|---|---|---|---|---|---|---|
| 0 | 919433 | 999461 | 919971 | 1080028 | 60 | 080566 | 000538 |
| 1 | 919512 | 999459 | 920052 | 1079947 | 59 | 080487 | 000540 |
| 2 | 919592 | 999457 | 920134 | 1079865 | 58 | 080407 | 000542 |
| 3 | 919671 | 999455 | 920215 | 1079784 | 57 | 080328 | 000544 |
| 4 | 919751 | 999453 | 920297 | 1079702 | 56 | 080248 | 000546 |
| 5 | 919830 | 999451 | 920378 | 1079621 | 55 | 080169 | 000548 |
| 6 | 919909 | 999449 | 920459 | 1079540 | 54 | 080090 | 000550 |
| 7 | 919987 | 999447 | 920540 | 1079459 | 53 | 080012 | 000552 |
| 8 | 920066 | 999445 | 920620 | 1079379 | 52 | 079933 | 000554 |
| 9 | 920145 | 999443 | 920701 | 1079298 | 51 | 079854 | 000556 |
| 10 | 920223 | 999441 | 920781 | 1079218 | 50 | 079776 | 000558 |
| 11 | 920301 | 999439 | 920861 | 1079138 | 49 | 079698 | 000560 |
| 12 | 920379 | 999437 | 920942 | 1079057 | 48 | 079620 | 000562 |
| 13 | 920457 | 999435 | 921022 | 1078978 | 47 | 079542 | 000564 |
| 14 | 920535 | 999433 | 921101 | 1078898 | 46 | 079464 | 000566 |
| 15 | 920613 | 999431 | 921181 | 1078818 | 45 | 079386 | 000568 |
| 16 | 920690 | 999429 | 921261 | 1078738 | 44 | 079309 | 000570 |
| 17 | 920767 | 999427 | 921340 | 1078659 | 43 | 079232 | 000572 |
| 18 | 920845 | 999425 | 921419 | 1078580 | 42 | 079154 | 000574 |
| 19 | 920922 | 999423 | 921498 | 1078501 | 41 | 079077 | 000576 |
| 20 | 920999 | 999421 | 921577 | 1078422 | 40 | 079000 | 000578 |
| 21 | 921075 | 999419 | 921656 | 1078343 | 39 | 078924 | 000580 |
| 22 | 921152 | 999417 | 921735 | 1078264 | 38 | 078847 | 000582 |
| 23 | 921229 | 999414 | 921814 | 1078185 | 37 | 078770 | 000585 |
| 24 | 921305 | 999412 | 921892 | 1078107 | 36 | 078694 | 000587 |
| 25 | 921381 | 999410 | 921970 | 1078029 | 35 | 078618 | 000589 |
| 26 | 921457 | 999408 | 922049 | 1077950 | 34 | 078542 | 000591 |
| 27 | 921533 | 999406 | 922127 | 1077872 | 33 | 078466 | 000593 |
| 28 | 921609 | 999404 | 922205 | 1077794 | 32 | 078390 | 000595 |
| 29 | 921685 | 999402 | 922282 | 1077717 | 31 | 078314 | 000597 |
| 30 | 921760 | 999400 | 922361 | 1077639 | 30 | 078239 | 000599 |
| | Sine compl. | Sine. | Tangent compl. | Tang. | 89 | | |

| 91 | Sine. | Sine Comple. | Tang. | Tangent Complem. | | Com. ar. of Sine. | Com. ar. of Tang. |
|---|---|---|---|---|---|---|---|
| 30 | 921760 | 999400 | 922360 | 1077639 | 30 | 078239 | 000599 |
| 31 | 921836 | 999398 | 922438 | 1077561 | 29 | 078163 | 000601 |
| 32 | 921911 | 999396 | 922515 | 1077484 | 28 | 078088 | 000603 |
| 33 | 921988 | 999393 | 922592 | 1077407 | 27 | 078011 | 000606 |
| 34 | 922061 | 999391 | 922670 | 1077329 | 26 | 077938 | 000608 |
| 35 | 922136 | 999389 | 922747 | 1077252 | 25 | 077862 | 000610 |
| 36 | 922211 | 999387 | 922823 | 1077176 | 24 | 077788 | 000612 |
| 37 | 922286 | 999385 | 922900 | 1077099 | 23 | 077713 | 000614 |
| 38 | 922360 | 999383 | 922977 | 1077022 | 22 | 077639 | 000616 |
| 39 | 922434 | 999381 | 923053 | 1076946 | 21 | 077565 | 000618 |
| 40 | 922509 | 999378 | 923130 | 1076869 | 20 | 077490 | 000621 |
| 41 | 922583 | 999376 | 923206 | 1076793 | 19 | 077416 | 000623 |
| 42 | 922657 | 999374 | 923282 | 1076717 | 18 | 077342 | 000625 |
| 43 | 922731 | 999372 | 923358 | 1076641 | 17 | 077268 | 000627 |
| 44 | 922804 | 999370 | 923433 | 1076565 | 16 | 077195 | 000629 |
| 45 | 922878 | 999368 | 923510 | 1076489 | 15 | 077121 | 000631 |
| 46 | 922951 | 999365 | 923585 | 1076414 | 14 | 077048 | 000634 |
| 47 | 923025 | 999363 | 923661 | 1076338 | 13 | 076974 | 000636 |
| 48 | 923098 | 999361 | 923736 | 1076263 | 12 | 076901 | 000638 |
| 49 | 923171 | 999359 | 923812 | 1076187 | 11 | 076828 | 000640 |
| 50 | 923244 | 999357 | 923887 | 1076112 | 10 | 076755 | 000642 |
| 51 | 923317 | 999355 | 923962 | 1076037 | 9 | 076682 | 000644 |
| 52 | 923389 | 999352 | 924037 | 1075962 | 8 | 076610 | 000647 |
| 53 | 923462 | 999350 | 924111 | 1075888 | 7 | 076537 | 000649 |
| 54 | 923534 | 999348 | 924186 | 1075813 | 6 | 076465 | 000651 |
| 55 | 923607 | 999346 | 924261 | 1075738 | 5 | 076392 | 000653 |
| 56 | 923679 | 999344 | 924335 | 1075664 | 4 | 076320 | 000655 |
| 57 | 923751 | 999341 | 924409 | 1075590 | 3 | 076248 | 000658 |
| 58 | 923823 | 999339 | 924483 | 1075516 | 2 | 076176 | 000660 |
| 59 | 923895 | 999337 | 924557 | 1075442 | 1 | 076104 | 000662 |
| 60 | 923967 | 999335 | 924631 | 1075368 | 0 | 076032 | 000664 |
| | Sine Comple. | Sine. | Tangent Comple. | Tang. | 180. | | |

| 10l | Sine. | Sine Comple. | Tang. | Tangent Complem. | | Cosec. of Sine. | Cosec. of Tang. |
|---|---|---|---|---|---|---|---|
| 0 | 923967 | 999335 | 924631 | 1075368 | 60 | 076032 | 00 66 |
| 1 | 924038 | 999332 | 924705 | 1075294 | 59 | 075961 | 00 0667 |
| 2 | 924110 | 999330 | 924779 | 1075220 | 58 | 075889 | 00 666 |
| 3 | 924181 | 999328 | 924852 | 1075147 | 57 | 075818 | 00 0671 |
| 4 | 924252 | 999326 | 924926 | 1075073 | 56 | 075747 | 00 673 |
| 5 | 924323 | 999323 | 924999 | 1075 00 | 55 | 075676 | 00 0678 |
| 6 | 924394 | 999321 | 925073 | 1074926 | 54 | 075605 | 00 0678 |
| 7 | 924465 | 999319 | 925146 | 1074853 | 53 | 075534 | 00 0680 |
| 8 | 924536 | 999317 | 925219 | 1074780 | 52 | 075463 | 00 0682 |
| 9 | 924606 | 999314 | 925292 | 10747 8 | 51 | 075393 | 00 0685 |
| 10 | 924677 | 999312 | 925364 | 1074635 | 50 | 075322 | 00 0687 |
| 11 | 924747 | 999310 | 925437 | 1074562 | 49 | 075252 | 00 0689 |
| 12 | 924818 | 999308 | 925509 | 1074490 | 48 | 075181 | 00 0691 |
| 13 | 924888 | 999305 | 925582 | 1074417 | 47 | 075111 | 00 0694 |
| 14 | 924958 | 999303 | 925654 | 1074345 | 46 | 075041 | 00 0696 |
| 15 | 925028 | 999301 | 925726 | 1074273 | 45 | 074971 | 00 0698 |
| 16 | 925098 | 999299 | 925799 | 1074200 | 44 | 074901 | 00 0700 |
| 17 | 925167 | 999296 | 925870 | 1074129 | 43 | 074832 | 00 0703 |
| 18 | 925237 | 999294 | 925942 | 10740 7 | 42 | 074762 | 00 0705 |
| 19 | 925306 | 999292 | 926014 | 1073985 | 41 | 074693 | 00 0707 |
| 20 | 925376 | 999289 | 926086 | 1073913 | 40 | 074623 | 00 0710 |
| 21 | 925445 | 999287 | 926157 | 1073842 | 39 | 074554 | 00 0712 |
| 22 | 925514 | 999285 | 926229 | 1073770 | 38 | 074485 | 00 0714 |
| 23 | 925583 | 999282 | 926300 | 1073699 | 37 | 074416 | 00 0717 |
| 24 | 925652 | 999280 | 926371 | 1073628 | 36 | 074347 | 00 0719 |
| 25 | 925721 | 999278 | 926442 | 1073557 | 35 | 074278 | 00 0721 |
| 26 | 925789 | 999275 | 926513 | 1073486 | 34 | 074210 | 00 0724 |
| 27 | 925858 | 999273 | 926584 | 1073415 | 33 | 074141 | 00 0726 |
| 28 | 925926 | 999271 | 926655 | 1073344 | 32 | 074073 | 00 0728 |
| 29 | 925995 | 999268 | 926726 | 1073273 | 31 | 074004 | 00 0731 |
| 30 | 926063 | 999266 | 926796 | 1073203 | 30 | 073936 | 00 0733 |
| | Sine Comple. | Sine. | Tangent Complem. | Tang. | 79 | | |

| 10 | Sine. | Sine Comple. | Tang. | Tangent Comple. | | Comear. of Sine. | Com. ar. of Tang. |
|---|---|---|---|---|---|---|---|
| 30 | 926063 | 999266 | 926796 | 1073203 | 30 | 073936 | 000733 |
| 31 | 926131 | 999264 | 926867 | 1073132 | 29 | 073868 | 000735 |
| 32 | 926199 | 999261 | 926937 | 1073062 | 28 | 073800 | 000738 |
| 33 | 926267 | 999259 | 927007 | 1072992 | 27 | 073732 | 000740 |
| 34 | 926335 | 999257 | 927077 | 1072922 | 26 | 073664 | 000742 |
| 35 | 926402 | 999254 | 927147 | 1072852 | 25 | 073597 | 000745 |
| 36 | 926470 | 999252 | 927217 | 1072782 | 24 | 073529 | 000747 |
| 37 | 926537 | 999250 | 927287 | 1072712 | 23 | 073462 | 000749 |
| 38 | 926605 | 999247 | 927357 | 1072642 | 22 | 073394 | 000752 |
| 39 | 926672 | 999245 | 927426 | 1072553 | 21 | 073327 | 000754 |
| 40 | 926739 | 999243 | 927496 | 1072503 | 20 | 073260 | 000756 |
| 41 | 926806 | 999240 | 927565 | 1072434 | 19 | 073193 | 000759 |
| 42 | 926873 | 999238 | 927635 | 1072364 | 18 | 073126 | 000761 |
| 43 | 926940 | 999235 | 927704 | 1072295 | 17 | 073059 | 000764 |
| 44 | 927006 | 999233 | 927773 | 1072226 | 16 | 072993 | 000766 |
| 45 | 927073 | 999231 | 927842 | 1072157 | 15 | 072926 | 000768 |
| 46 | 927139 | 999228 | 927911 | 1072088 | 14 | 072860 | 000771 |
| 47 | 927206 | 999226 | 927980 | 1072019 | 13 | 072793 | 000773 |
| 48 | 927272 | 999223 | 928048 | 1071951 | 12 | 072727 | 000776 |
| 49 | 927338 | 999221 | 928117 | 1071882 | 11 | 072661 | 000778 |
| 50 | 927404 | 999219 | 928185 | 1071814 | 10 | 072595 | 000780 |
| 51 | 927470 | 999216 | 928254 | 1071745 | 9 | 072529 | 000783 |
| 52 | 927536 | 999214 | 928322 | 1071677 | 8 | 072463 | 000785 |
| 53 | 927602 | 999211 | 928390 | 1071609 | 7 | 072397 | 000788 |
| 54 | 927668 | 999209 | 928458 | 1071541 | 6 | 072331 | 000790 |
| 55 | 927733 | 999206 | 928526 | 1071473 | 5 | 072266 | 000793 |
| 56 | 927799 | 999204 | 928594 | 1071405 | 4 | 072200 | 000795 |
| 57 | 927864 | 999202 | 928662 | 1071337 | 3 | 072235 | 000797 |
| 58 | 927929 | 999199 | 928730 | 1071269 | 2 | 072070 | 000800 |
| 59 | 927994 | 999197 | 928797 | 1071202 | 1 | 072005 | 000802 |
| 60 | 928059 | 999194 | 928865 | 1071134 | 0 | 071940 | 000805 |
| | Sine Comple. | Sine. | Tangent Comple. | Tang. | 79. | | |

| | Sine. | Sine Comple. | Tang. | Tangent Complem. | | Com. ar. of Sine. | Com. ar. of Si. co |
|---|---|---|---|---|---|---|---|
| 0 | 928059 | 999191 | 928865 | 1071134 | 60 | 071940 | 000805 |
| 1 | 928124 | 999192 | 928932 | 1071067 | 59 | 071815 | 000807 |
| 2 | 928189 | 999189 | 928999 | 1071000 | 58 | 071875 | 000810 |
| 3 | 928254 | 999187 | 929067 | 1070932 | 57 | 071745 | 000812 |
| 4 | 928319 | 999184 | 929134 | 1070865 | 56 | 071680 | 000814 |
| 5 | 928383 | 999182 | 929201 | 1070798 | 55 | 071616 | 000817 |
| 6 | 928448 | 999179 | 929268 | 1070731 | 54 | 071551 | 000820 |
| 7 | 928512 | 999177 | 929335 | 1070665 | 53 | 071487 | 000822 |
| 8 | 928576 | 999174 | 929401 | 1070598 | 52 | 071423 | 000825 |
| 9 | 928640 | 999172 | 929468 | 1070531 | 51 | 071359 | 000827 |
| 10 | 928704 | 999169 | 929534 | 1070465 | 50 | 071295 | 000830 |
| 11 | 928768 | 999167 | 929601 | 1070398 | 49 | 071231 | 000833 |
| 12 | 928832 | 999164 | 929667 | 1070332 | 48 | 071167 | 000835 |
| 13 | 928896 | 999162 | 929733 | 1070266 | 47 | 071103 | 000837 |
| 14 | 928960 | 999159 | 929800 | 1070199 | 46 | 071039 | 000840 |
| 15 | 929023 | 999157 | 929866 | 1070133 | 45 | 070976 | 000843 |
| 16 | 929087 | 999154 | 929932 | 1070067 | 44 | 070912 | 000845 |
| 17 | 929150 | 999152 | 929998 | 1070001 | 43 | 070849 | 000847 |
| 18 | 929213 | 999149 | 930063 | 1069936 | 42 | 070786 | 000850 |
| 19 | 929276 | 999147 | 930129 | 1069870 | 41 | 070723 | 000853 |
| 20 | 929339 | 999144 | 930195 | 1069804 | 40 | 070660 | 000855 |
| 21 | 929402 | 999142 | 930260 | 1069739 | 39 | 070597 | 000857 |
| 22 | 929465 | 999139 | 930326 | 1069673 | 38 | 070534 | 000860 |
| 23 | 929528 | 999137 | 930391 | 1069608 | 37 | 070471 | 000862 |
| 24 | 929591 | 999134 | 930456 | 1069543 | 36 | 070408 | 000865 |
| 25 | 929653 | 999132 | 930521 | 1069478 | 35 | 070346 | 000867 |
| 26 | 929716 | 999129 | 930586 | 1069413 | 34 | 070283 | 000870 |
| 27 | 929778 | 999126 | 930651 | 1069348 | 33 | 070221 | 000873 |
| 28 | 929841 | 999124 | 930716 | 1069283 | 32 | 070158 | 000875 |
| 29 | 929903 | 999121 | 930781 | 1069218 | 31 | 070096 | 000878 |
| 30 | 929965 | 999119 | 930849 | 1069153 | 30 | 070034 | 000881 |
| | Sine Comple. | Sine. | Tangent Complem. | Tang. | 78 | | |

| | Sine. | Sine Comple. | Tang. | Tangent Complem. | Com. æ. of Sine. | Com. æ. of Ta. co. |
|---|---|---|---|---|---|---|
| 0 | 929965 | 999119 | 930846 | 1069153 | 30 070034 | 000880 |
| 1 | 930027 | 999116 | 930910 | 1069089 | 29 069972 | 000883 |
| 2 | 930089 | 999114 | 930975 | 1069024 | 28 069910 | 000885 |
| 3 | 930151 | 999111 | 931039 | 1068960 | 27 069848 | 000888 |
| 4 | 930213 | 999108 | 931104 | 1068895 | 26 069786 | 000891 |
| 5 | 930274 | 999106 | 931168 | 1068831 | 25 069725 | 000893 |
| 6 | 930336 | 999103 | 931232 | 1068767 | 24 069663 | 000896 |
| 7 | 930397 | 999101 | 931296 | 1068703 | 23 069602 | 000898 |
| 8 | 930459 | 999098 | 931361 | 1068639 | 22 069540 | 000901 |
| 9 | 930520 | 999095 | 931424 | 1068575 | 21 069479 | 000904 |
| 10 | 930581 | 999093 | 931488 | 1068511 | 20 069418 | 000906 |
| 11 | 930643 | 999091 | 931552 | 1068447 | 19 069357 | 000909 |
| 12 | 930704 | 999088 | 931615 | 1068384 | 18 069295 | 000911 |
| 13 | 930765 | 999085 | 931679 | 1068320 | 17 069234 | 000914 |
| 14 | 930825 | 999082 | 931742 | 1068257 | 16 069174 | 000917 |
| 15 | 930886 | 999080 | 931806 | 1068193 | 15 069113 | 000919 |
| 16 | 930947 | 999077 | 931869 | 1068130 | 14 069052 | 000922 |
| 17 | 931007 | 999075 | 931932 | 1068067 | 13 068992 | 000924 |
| 18 | 931068 | 999072 | 931996 | 1068003 | 12 068931 | 000927 |
| 19 | 931128 | 999069 | 932059 | 1067947 | 11 068871 | 000930 |
| 20 | 931189 | 999067 | 932122 | 1067877 | 10 068810 | 000932 |
| 21 | 931249 | 999064 | 932185 | 1067814 | 9 068750 | 000935 |
| 22 | 931309 | 999061 | 932247 | 1067752 | 8 068690 | 000938 |
| 23 | 931369 | 999059 | 932311 | 1067689 | 7 068630 | 000940 |
| 24 | 931429 | 999056 | 932378 | 1067626 | 6 068570 | 000943 |
| 25 | 931489 | 999053 | 932435 | 1067564 | 5 068510 | 000946 |
| 26 | 931549 | 999051 | 932498 | 1067501 | 4 068450 | 000948 |
| 27 | 931609 | 999048 | 932560 | 1067439 | 3 068390 | 000951 |
| 28 | 931668 | 999045 | 932623 | 1067376 | 2 068331 | 000954 |
| 29 | 931728 | 999043 | 932685 | 1067314 | 1 068271 | 000956 |
| 60 | 931787 | 999040 | 932747 | 1067252 | 0 068212 | 000959 |
| | Sine Complem | | Sine. | Tangent Complem | Tang. | 178. |

| | Sine. | Sine Comple. | Tang. | Tangent Complem. | | Com. ar. of Sine. | Com. of Sine. |
|---|---|---|---|---|---|---|---|
| 0 | 931787 | 999040 | 932747 | 1067252 | 60 | 068212 | 000 |
| 1 | 931847 | 999037 | 932809 | 1067190 | 59 | 068154 | 000 |
| 2 | 931906 | 999035 | 932871 | 1067128 | 58 | 068093 | 000 |
| 3 | 931965 | 999032 | 932933 | 1067066 | 57 | 068034 | 000 |
| 4 | 932024 | 999029 | 932995 | 1067004 | 56 | 067975 | 000 |
| 5 | 932084 | 999026 | 933057 | 1066942 | 55 | 067916 | 000 |
| 6 | 932142 | 999024 | 933118 | 1066881 | 54 | 067857 | 000 |
| 7 | 932201 | 999021 | 933180 | 1066819 | 53 | 067798 | 000 |
| 8 | 932260 | 999018 | 933241 | 1066758 | 52 | 067739 | 000 |
| 9 | 932319 | 999016 | 933303 | 1066696 | 51 | 067680 | 000 |
| 10 | 932378 | 999013 | 933364 | 1066635 | 50 | 067621 | 000 |
| 11 | 932436 | 999010 | 933425 | 1066574 | 49 | 067563 | 000 |
| 12 | 932495 | 999007 | 933487 | 1066512 | 48 | 067504 | 000 |
| 13 | 932553 | 999005 | 933548 | 1066451 | 47 | 067446 | 000 |
| 14 | 932611 | 999002 | 933609 | 1066390 | 46 | 067388 | 000 |
| 15 | 932669 | 998999 | 933670 | 1066329 | 45 | 06733 | 001 |
| 16 | 932728 | 998992 | 933731 | 1066268 | 44 | 067271 | 001 |
| 17 | 932786 | 998994 | 933791 | 1066208 | 43 | 067213 | 001 |
| 18 | 932844 | 998991 | 933852 | 1066147 | 42 | 067155 | 001 |
| 19 | 932902 | 998988 | 933913 | 1066086 | 41 | 067097 | 001 |
| 20 | 932959 | 998985 | 933973 | 1066026 | 40 | 067040 | 001 |
| 21 | 933017 | 998983 | 934034 | 1065965 | 39 | 066982 | 001 |
| 22 | 933075 | 998980 | 934094 | 1065905 | 38 | 066924 | 001 |
| 23 | 933132 | 998977 | 934155 | 1065844 | 37 | 066867 | 001 |
| 24 | 933190 | 998974 | 934215 | 1065784 | 36 | 066809 | 001 |
| 25 | 933247 | 998972 | 934275 | 1065724 | 35 | 066752 | 001 |
| 26 | 933305 | 998969 | 934335 | 1065664 | 34 | 066694 | 001 |
| 27 | 933362 | 998966 | 934395 | 1065604 | 33 | 066637 | 001 |
| 28 | 933419 | 998963 | 934455 | 1065544 | 32 | 066580 | 001 |
| 29 | 933476 | 998960 | 934513 | 1065548 | 31 | 066523 | 001 |
| 30 | 933533 | 998958 | 934575 | 1065424 | 30 | 066466 | 001 |

| | Sine. | Sine Comple. | Tang. | Tangent Complem. | | Com. Ar. of Sine. | Com. Ar. of Si. co |
|---|---|---|---|---|---|---|---|
| 0 | 933533 | 998958 | 934575 | 1065424 | 30 | 066466 | 001041 |
| 1 | 933590 | 998955 | 934635 | 1065364 | 29 | 066409 | 001044 |
| 2 | 933647 | 998952 | 934694 | 1065305 | 28 | 066352 | 001047 |
| 3 | 933704 | 998949 | 934754 | 1065245 | 27 | 066295 | 001050 |
| 4 | 933763 | 998946 | 934814 | 1065185 | 26 | 066239 | 001053 |
| 5 | 933817 | 998944 | 934873 | 1065126 | 25 | 066182 | 001055 |
| 6 | 933874 | 998941 | 934932 | 1065067 | 24 | 066125 | 001058 |
| 7 | 933930 | 998938 | 934992 | 1065007 | 23 | 066069 | 001061 |
| 8 | 933987 | 998935 | 935051 | 1064948 | 22 | 066012 | 001064 |
| 9 | 934043 | 998932 | 935110 | 1064889 | 21 | 065956 | 001067 |
| 10 | 934099 | 998929 | 935169 | 1064830 | 20 | 065900 | 001070 |
| 11 | 934155 | 998927 | 935228 | 1064771 | 19 | 065844 | 001072 |
| 12 | 934211 | 998924 | 935287 | 1064712 | 18 | 065788 | 001075 |
| 13 | 934267 | 998921 | 935346 | 1064653 | 17 | 065732 | 001078 |
| 14 | 934323 | 998918 | 935405 | 1064594 | 16 | 065676 | 001081 |
| 15 | 934379 | 998915 | 935464 | 1064535 | 15 | 065620 | 001084 |
| 16 | 934435 | 998912 | 935522 | 1064477 | 14 | 065564 | 001087 |
| 17 | 934491 | 998909 | 935581 | 1064418 | 13 | 065508 | 001090 |
| 18 | 934546 | 998907 | 935639 | 1064360 | 12 | 065453 | 001092 |
| 19 | 934602 | 998904 | 935698 | 1064301 | 11 | 065397 | 001095 |
| 20 | 934657 | 998901 | 935756 | 1064243 | 10 | 065342 | 001098 |
| 21 | 934713 | 998898 | 935814 | 1064181 | 9 | 065286 | 001101 |
| 22 | 934768 | 998895 | 935873 | 1064126 | 8 | 065231 | 001104 |
| 23 | 934823 | 998892 | 935931 | 1064068 | 7 | 065176 | 001107 |
| 24 | 934879 | 998889 | 935989 | 1064010 | 6 | 065120 | 001112 |
| 25 | 934934 | 998886 | 936047 | 1063952 | 5 | 065065 | 001113 |
| 26 | 934989 | 998884 | 936105 | 1063894 | 4 | 065010 | 001115 |
| 27 | 935044 | 998881 | 936163 | 1063836 | 3 | 064955 | 001118 |
| 28 | 935099 | 998878 | 936221 | 1063779 | 2 | 064900 | 001121 |
| 29 | 935154 | 998875 | 936278 | 1063721 | 1 | 064845 | 001124 |
| 30 | 935208 | 998872 | 936336 | 1063663 | 0 | 064791 | 001127 |
| | Sine Comple. | Sine. | Tangent Complem | Tang. | | | |

| | Sine. | Sine Comple. | Tang. | Tangent Complem. | | Com. of Side. | Com. of Side. |
|---|---|---|---|---|---|---|---|
| 0 | 935208 | 998872 | 936236 | 1063663 | 60 | 064791 | 001128 |
| 1 | 935263 | 998869 | 936294 | 1063605 | 59 | 064736 | 001131 |
| 2 | 935318 | 998866 | 936451 | 1063548 | 58 | 064681 | 001133 |
| 3 | 935372 | 998863 | 936509 | 1063490 | 57 | 064627 | 001136 |
| 4 | 935427 | 998860 | 936566 | 1063433 | 56 | 064572 | 001139 |
| 5 | 935481 | 998857 | 936623 | 1063376 | 55 | 064518 | 001142 |
| 6 | 935535 | 998854 | 936681 | 1063319 | 54 | 064464 | 001145 |
| 7 | 935590 | 998851 | 936738 | 1063261 | 53 | 064409 | 001148 |
| 8 | 935644 | 998848 | 936795 | 1063204 | 52 | 064355 | 001151 |
| 9 | 935698 | 998845 | 936852 | 1063147 | 51 | 064301 | 001154 |
| 10 | 935752 | 998843 | 936909 | 1063090 | 50 | 064247 | 001156 |
| 11 | 935806 | 998840 | 936966 | 1063033 | 49 | 064193 | 001159 |
| 12 | 935860 | 998837 | 937023 | 1062976 | 48 | 064139 | 001162 |
| 13 | 935914 | 998834 | 937079 | 1062920 | 47 | 064085 | 001165 |
| 14 | 935967 | 998831 | 937136 | 1062863 | 46 | 064032 | 001168 |
| 15 | 936021 | 998828 | 937193 | 1062806 | 45 | 063978 | 001171 |
| 16 | 936075 | 998825 | 937249 | 1062750 | 44 | 063924 | 001174 |
| 17 | 936128 | 998822 | 937306 | 1062693 | 43 | 063871 | 001177 |
| 18 | 936182 | 998819 | 937362 | 1062637 | 42 | 063817 | 001180 |
| 19 | 936235 | 998816 | 937419 | 1062580 | 41 | 063764 | 001183 |
| 20 | 936288 | 998813 | 937475 | 1062524 | 40 | 063711 | 001186 |
| 21 | 936342 | 998810 | 937521 | 1062468 | 39 | 063657 | 001189 |
| 22 | 936395 | 998807 | 937588 | 1062411 | 38 | 063604 | 001192 |
| 23 | 936448 | 998804 | 937642 | 1062355 | 37 | 063551 | 001195 |
| 24 | 936501 | 998801 | 937700 | 1062299 | 36 | 063498 | 001198 |
| 25 | 936554 | 998798 | 937756 | 1062240 | 35 | 063445 | 001201 |
| 26 | 936607 | 998795 | 937812 | 1062187 | 34 | 063392 | 001204 |
| 27 | 936660 | 998792 | 937868 | 1062131 | 33 | 063339 | 001207 |
| 28 | 936713 | 998789 | 937922 | 1062076 | 32 | 063286 | 001210 |
| 29 | 936765 | 998786 | 937974 | 1062020 | 31 | 063234 | 001213 |
| 30 | 936818 | 998783 | 938035 | 1061964 | 30 | 063181 | 001216 |

| Sine Comple. | Sine. | Tangent Complem. | Tang. | 182. |
|---|---|---|---|---|

| Sine. | Sine Comple. | Tang. | Tangent Comple. | | Coan. ar. of Sine. | Coan. ar. of Tang. |
|---|---|---|---|---|---|---|
| 36818 | 998783 | 938035 | 1061964 | 30 | 063181 | 001216 |
| 36871 | 998780 | 938091 | 1061909 | 29 | 063128 | 001219 |
| 36923 | 998777 | 938146 | 1061853 | 28 | 063076 | 001222 |
| 36976 | 998774 | 938202 | 1061797 | 27 | 063023 | 001225 |
| 37028 | 998770 | 938257 | 1061742 | 26 | 062971 | 001229 |
| 37080 | 998767 | 938312 | 1061687 | 25 | 062919 | 001232 |
| 37133 | 998764 | 938368 | 1061631 | 24 | 062866 | 001235 |
| 37185 | 998761 | 938423 | 1061576 | 23 | 062814 | 001238 |
| 37237 | 998758 | 938478 | 1061521 | 22 | 062762 | 001241 |
| 37289 | 998755 | 938533 | 1061466 | 21 | 062710 | 001244 |
| 37341 | 998752 | 938588 | 1061411 | 20 | 062658 | 001247 |
| 37393 | 998749 | 938643 | 1061356 | 19 | 062606 | 001250 |
| 37445 | 998746 | 938698 | 1061301 | 18 | 062554 | 001253 |
| 37496 | 998743 | 938753 | 1061246 | 17 | 062503 | 001256 |
| 37548 | 998740 | 938808 | 1061191 | 16 | 062451 | 001259 |
| 37600 | 998737 | 938863 | 1061136 | 15 | 062399 | 001262 |
| 37651 | 998734 | 938917 | 1061082 | 14 | 062348 | 001265 |
| 37703 | 998731 | 938972 | 1061027 | 13 | 062296 | 001268 |
| 37754 | 998727 | 939027 | 1060973 | 12 | 062245 | 001272 |
| 37806 | 998724 | 939081 | 1060918 | 11 | 062193 | 001275 |
| 37857 | 998721 | 939135 | 1060864 | 10 | 062142 | 001278 |
| 37908 | 998718 | 939190 | 1060809 | 9 | 062091 | 001281 |
| 37960 | 998715 | 939244 | 1060755 | 8 | 062039 | 001284 |
| 38011 | 998712 | 939298 | 1060701 | 7 | 061988 | 001287 |
| 38062 | 998709 | 939355 | 1060644 | 6 | 061937 | 001290 |
| 38113 | 998706 | 939407 | 1060592 | 5 | 061886 | 001293 |
| 38164 | 998702 | 939461 | 1060538 | 4 | 061835 | 001297 |
| 38215 | 998699 | 939515 | 1060484 | 3 | 061784 | 001300 |
| 38266 | 998696 | 939569 | 1060430 | 2 | 061733 | 001303 |
| 38316 | 998693 | 939623 | 1060376 | 1 | 061683 | 001305 |
| 38367 | 998690 | 939677 | 1060322 | 0 | 061632 | 001309 |
| Sine Comple. | Sine. | Tangent Comple. | Tang. | 176. | | |

| 14 | Sine. | Sine Comple. | Tang. | Tangent Comple. | | Com. Ar. of Sine. | |
|---|---|---|---|---|---|---|---|
| 0 | 938367 | 998690 | 939673 | 1060322 | 60 | 061632 | 00 |
| 1 | 938418 | 998687 | 939730 | 1060269 | 56 | 061581 | 00 |
| 2 | 938468 | 998684 | 939784 | 1060215 | 58 | 061531 | 00 |
| 3 | 938519 | 998680 | 939838 | 1060161 | 57 | 061480 | 00 |
| 4 | 938569 | 998677 | 939891 | 1060108 | 56 | 061430 | 00 |
| 5 | 938620 | 998674 | 939945 | 1060054 | 55 | 061379 | 00 |
| 6 | 938670 | 998671 | 939998 | 1060001 | 54 | 061329 | 00 |
| 7 | 938720 | 998668 | 940052 | 1059947 | 53 | 061279 | 00 |
| 8 | 938770 | 998665 | 940105 | 1059894 | 52 | 061229 | 00 |
| 9 | 938821 | 998661 | 940159 | 1059840 | 51 | 061178 | 00 |
| 10 | 938871 | 998658 | 940212 | 1059787 | 50 | 061128 | 00 |
| 11 | 938921 | 998655 | 940265 | 1059734 | 49 | 061078 | 00 |
| 12 | 938971 | 998652 | 940318 | 1059681 | 48 | 061028 | 00 |
| 13 | 939020 | 998649 | 940371 | 1059628 | 47 | 060979 | 00 |
| 14 | 939070 | 998645 | 940424 | 1059575 | 46 | 060929 | 00 |
| 15 | 939120 | 998642 | 940477 | 1059522 | 45 | 060879 | 00 |
| 16 | 939170 | 998639 | 940530 | 1059469 | 44 | 060829 | 00 |
| 17 | 939219 | 998636 | 940583 | 1059416 | 43 | 060780 | 00 |
| 18 | 939269 | 998633 | 940636 | 1059363 | 42 | 060730 | 00 |
| 19 | 939319 | 998629 | 940689 | 1059310 | 41 | 060680 | 00 |
| 20 | 939368 | 998626 | 940741 | 1059258 | 40 | 060631 | 00 |
| 21 | 939417 | 998623 | 940794 | 1059205 | 39 | 060582 | 00 |
| 22 | 939467 | 998620 | 940847 | 1059152 | 38 | 060532 | 00 |
| 23 | 939516 | 998616 | 940899 | 1059100 | 37 | 060483 | 00 |
| 24 | 939565 | 998613 | 940952 | 1059047 | 36 | 060434 | 00 |
| 25 | 939614 | 998610 | 941004 | 1058995 | 35 | 060385 | 00 |
| 26 | 939664 | 998607 | 941056 | 1058943 | 34 | 060335 | 00 |
| 27 | 939713 | 998603 | 941109 | 1058890 | 33 | 060286 | 00 |
| 28 | 939762 | 998600 | 941161 | 1058838 | 32 | 060237 | 00 |
| 29 | 939811 | 998597 | 941213 | 1058786 | 31 | 060188 | 00 |
| 30 | 939859 | 998594 | 941265 | 1058734 | 30 | 060140 | 00 |
| 1 | Sine Compl. | Sine. | Tangent Comple. | Tang. | 75 | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com. of sine | com. of tang. |
|---|---|---|---|---|---|---|
| 939859 | 998494 | 941265 | 1058734 | 30 | 060140 | 001405 |
| 939908 | 998590 | 941317 | 1058682 | 29 | 060091 | 001409 |
| 939957 | 998587 | 941369 | 1058630 | 28 | 060042 | 001412 |
| 940006 | 998584 | 941421 | 1058578 | 27 | 059993 | 001415 |
| 940054 | 998581 | 941473 | 1058526 | 26 | 059945 | 001418 |
| 940103 | 998577 | 941525 | 1058474 | 25 | 059896 | 001422 |
| 940152 | 998574 | 941577 | 1058422 | 24 | 059847 | 001425 |
| 940200 | 998571 | 941629 | 1058370 | 23 | 059799 | 001428 |
| 940248 | 998567 | 941680 | 1058319 | 22 | 059751 | 001432 |
| 940227 | 998564 | 941732 | 1058267 | 21 | 059702 | 001435 |
| 940345 | 998561 | 941784 | 1058215 | 20 | 059654 | 001438 |
| 940393 | 998557 | 941835 | 1058164 | 19 | 059606 | 001442 |
| 940441 | 998554 | 941887 | 1058112 | 18 | 059558 | 001445 |
| 940490 | 998551 | 941938 | 1058061 | 17 | 059509 | 001448 |
| 940538 | 998548 | 941990 | 1058009 | 16 | 059461 | 001451 |
| 940586 | 998544 | 942041 | 1057958 | 15 | 059413 | 001455 |
| 940634 | 998541 | 942092 | 1057907 | 14 | 059365 | 001458 |
| 940682 | 998538 | 942143 | 1057856 | 13 | 059317 | 001461 |
| 940729 | 998534 | 942195 | 1057804 | 12 | 059270 | 001465 |
| 940777 | 998531 | 942246 | 1057753 | 11 | 059222 | 001468 |
| 940825 | 998528 | 942297 | 1057702 | 10 | 059174 | 001471 |
| 940873 | 998524 | 942348 | 1057651 | 9 | 059126 | 001475 |
| 940920 | 998521 | 942399 | 1057600 | 8 | 059079 | 001478 |
| 940988 | 998517 | 942450 | 1057549 | 7 | 059031 | 001482 |
| 941015 | 998514 | 942501 | 1057498 | 6 | 058984 | 001485 |
| 941063 | 998511 | 942551 | 1057448 | 5 | 058936 | 001488 |
| 941111 | 998507 | 942602 | 1057397 | 4 | 058889 | 001492 |
| 941157 | 998504 | 942653 | 1057346 | 3 | 058842 | 001495 |
| 941205 | 998501 | 942704 | 1057295 | 2 | 058794 | 001498 |
| 941252 | 998497 | 942754 | 1057245 | 1 | 058747 | 001502 |
| 941299 | 998494 | 942805 | 1057194 | 0 | 058700 | 001505 |
| Sine comple. | Sine. | Tangent comple. | Tang. | 75 | | |

| 15 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. to of sine | com. of |
|---|---|---|---|---|---|---|---|
| 0 | 941299 | 998494 | 942805 | 1057194 | 60 | 058700 | 0015 |
| 1 | 941346 | 998490 | 942855 | 1057144 | 59 | 058653 | 0015 |
| 2 | 941393 | 998487 | 942906 | 1057093 | 58 | 058606 | 0015 |
| 3 | 941440 | 998484 | 942956 | 1057043 | 57 | 058559 | 0015 |
| 4 | 941487 | 998480 | 943006 | 1056993 | 56 | 058512 | 0015 |
| 5 | 941534 | 998477 | 943057 | 1056942 | 55 | 058465 | 0015 |
| 6 | 941581 | 998474 | 943157 | 1056893 | 54 | 058418 | 0015 |
| 7 | 941628 | 998470 | 943157 | 1056842 | 53 | 058371 | 0015 |
| 8 | 941675 | 998476 | 943207 | 1056792 | 52 | 058324 | 0015 |
| 9 | 941721 | 998463 | 943257 | 1056742 | 51 | 058278 | 0015 |
| 10 | 941768 | 998460 | 943308 | 1056691 | 50 | 058231 | 0015 |
| 11 | 941814 | 998456 | 943358 | 1056641 | 49 | 058185 | 0015 |
| 12 | 941861 | 998453 | 943408 | 1056592 | 48 | 058138 | 0015 |
| 13 | 941907 | 998450 | 943457 | 1056542 | 47 | 058092 | 0015 |
| 14 | 941954 | 998446 | 943507 | 1056492 | 46 | 058045 | 0015 |
| 15 | 942000 | 998443 | 943557 | 1056442 | 45 | 057999 | 0015 |
| 16 | 942047 | 998439 | 943607 | 1056392 | 44 | 057952 | 0015 |
| 17 | 942093 | 998436 | 943657 | 1056342 | 43 | 057906 | 0015 |
| 18 | 942139 | 998432 | 943706 | 1056293 | 42 | 057861 | 0015 |
| 19 | 942185 | 998429 | 943756 | 1056243 | 41 | 057814 | 0015 |
| 20 | 942231 | 998425 | 943805 | 1056194 | 40 | 057768 | 0015 |
| 21 | 942277 | 998422 | 943855 | 1056144 | 39 | 057722 | 0015 |
| 22 | 942323 | 998418 | 943904 | 1056095 | 38 | 057676 | 0015 |
| 23 | 942369 | 998415 | 943954 | 1056045 | 37 | 057630 | 0015 |
| 24 | 942415 | 998412 | 944003 | 1055996 | 36 | 057584 | 0015 |
| 25 | 942461 | 998408 | 944052 | 1055947 | 35 | 057538 | 0015 |
| 26 | 942507 | 998405 | 944102 | 1055897 | 34 | 057492 | 0015 |
| 27 | 942552 | 998401 | 944151 | 1055848 | 33 | 057447 | 0015 |
| 28 | 942598 | 998398 | 944200 | 1055799 | 32 | 057401 | 0015 |
| 29 | 942644 | 998394 | 944249 | 1055750 | 31 | 057355 | 0015 |
| 30 | 942689 | 998391 | 944298 | 1055701 | 30 | 057310 | 0015 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| | Sine. | Sine comple. | Tang. | Tangent comple. | | sem. sr of sine | com. sr of sine. |
|---|---|---|---|---|---|---|---|
| 0 | 942689 | 998391 | 944298 | 1055701 | 30 | 057310 | 001608 |
| 1 | 942735 | 998387 | 944347 | 1055652 | 29 | 057264 | 001612 |
| 2 | 942780 | 998384 | 944396 | 1055603 | 28 | 057219 | 001615 |
| 3 | 942826 | 998380 | 944445 | 1055554 | 27 | 057173 | 001619 |
| 4 | 942871 | 998377 | 944494 | 1055505 | 26 | 057128 | 001622 |
| 5 | 942917 | 998373 | 944543 | 1055456 | 25 | 057082 | 001626 |
| 6 | 942962 | 998369 | 944592 | 1055407 | 24 | 057037 | 001630 |
| 7 | 943007 | 998366 | 944641 | 1055358 | 23 | 056992 | 001633 |
| 8 | 943052 | 998362 | 944689 | 1055310 | 22 | 056947 | 001637 |
| 9 | 943097 | 998359 | 944738 | 1055261 | 21 | 056902 | 001640 |
| 0 | 943142 | 998355 | 944787 | 1055212 | 20 | 056857 | 001644 |
| 1 | 943187 | 998352 | 944835 | 1055164 | 19 | 056812 | 001647 |
| 2 | 943232 | 998348 | 944884 | 1055115 | 18 | 056767 | 001651 |
| 3 | 943277 | 998345 | 944932 | 1055067 | 17 | 056722 | 001654 |
| 4 | 943322 | 998341 | 944981 | 1055018 | 16 | 056677 | 001658 |
| 5 | 943367 | 998338 | 945029 | 1054970 | 15 | 056632 | 001661 |
| 6 | 943412 | 998334 | 945077 | 1054922 | 14 | 056587 | 001665 |
| 7 | 943456 | 998330 | 945126 | 1054873 | 13 | 056543 | 001669 |
| 8 | 943501 | 998327 | 945174 | 1054825 | 12 | 056498 | 001672 |
| 9 | 943546 | 998323 | 945222 | 1054777 | 11 | 056453 | 001676 |
| 0 | 943590 | 998320 | 945270 | 1054729 | 10 | 056409 | 001679 |
| 1 | 943635 | 998316 | 945318 | 1054681 | 9 | 056364 | 001683 |
| 2 | 943679 | 998313 | 945366 | 1054633 | 8 | 056320 | 001686 |
| 3 | 943724 | 998309 | 945414 | 1054585 | 7 | 056275 | 001690 |
| 4 | 943768 | 998305 | 945462 | 1054537 | 6 | 056231 | 001694 |
| 5 | 943812 | 998302 | 945510 | 1054489 | 5 | 056187 | 001697 |
| 6 | 943857 | 998298 | 945558 | 1054441 | 4 | 056142 | 001701 |
| 7 | 943901 | 998295 | 945606 | 1054393 | 3 | 056098 | 001704 |
| 8 | 943945 | 998291 | 945654 | 1054345 | 2 | 056054 | 001708 |
| 9 | 943989 | 998287 | 945701 | 1054298 | 1 | 056010 | 001712 |
| 0 | 944033 | 998284 | 945749 | 1054250 | 0 | 055966 | 001715 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | | 74 | |

| 16 Sine. | Sine comple. | Tang. | Tangent comple. | | com. of fine | com. of fa. |
|---|---|---|---|---|---|---|
| 0 944033 | 998284 | 945749 | 1054250 | 60 | 055966 | 0017 |
| 1 944077 | 998280 | 945797 | 1054202 | 59 | 055922 | 0017 |
| 2 944121 | 998276 | 945844 | 1054155 | 58 | 055878 | 0017 |
| 3 944165 | 998273 | 945892 | 1054107 | 57 | 055834 | 0017 |
| 4 944209 | 998269 | 945940 | 1054059 | 56 | 055790 | 0017 |
| 5 944252 | 998266 | 945987 | 1054012 | 55 | 055746 | 0017 |
| 6 944297 | 998262 | 946034 | 1053965 | 54 | 055702 | 0017 |
| 7 944341 | 998258 | 946082 | 1053917 | 53 | 055658 | 0017 |
| 8 944384 | 998255 | 946129 | 1053870 | 52 | 055615 | 0017 |
| 9 944428 | 998251 | 946176 | 1053823 | 51 | 055571 | 0017 |
| 10 944471 | 998247 | 946224 | 1053775 | 50 | 055528 | 0017 |
| 11 944515 | 998244 | 946271 | 1053728 | 49 | 055484 | 0017 |
| 12 944559 | 998240 | 946318 | 1053781 | 48 | 055440 | 0017 |
| 13 944602 | 998236 | 946365 | 1053634 | 47 | 055397 | 0017 |
| 14 944645 | 998232 | 946412 | 1053587 | 46 | 055354 | 0017 |
| 15 944689 | 998229 | 946459 | 1053540 | 45 | 055310 | 0017 |
| 16 944732 | 998225 | 946506 | 1053493 | 44 | 055267 | 0017 |
| 17 944775 | 998222 | 946553 | 1053446 | 43 | 055224 | 0017 |
| 18 944819 | 998218 | 946600 | 1053399 | 42 | 055180 | 0017 |
| 19 944862 | 998214 | 946647 | 1053352 | 41 | 055137 | 0017 |
| 20 944905 | 998210 | 946694 | 1053305 | 40 | 055094 | 0017 |
| 21 944948 | 998207 | 946741 | 1053258 | 39 | 055051 | 0010 |
| 22 944991 | 998203 | 946788 | 1053211 | 38 | 055008 | 00 7 |
| 23 945034 | 998199 | 946834 | 105316- | 37 | 054965 | 0018 |
| 24 945077 | 998196 | 946881 | 1053118 | 36 | 054922 | 0018 |
| 25 945120 | 998192 | 946928 | 1053071 | 35 | 054879 | 0018 |
| 26 945163 | 998188 | 946974 | 1053025 | 34 | 054836 | 0018 |
| 27 945208 | 998184 | 947021 | 1052978 | 33 | 054793 | 0018 |
| 28 945248 | 998181 | 947067 | 1052932 | 32 | 054751 | 0018 |
| 29 945291 | 998177 | 947114 | 1052885 | 31 | 054708 | 0018 |
| 30 945334 | 998173 | 947160 | 1052839 | 30 | 054665 | 0018 |

| 6 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine. | com. ar of fin. co- |
|---|---|---|---|---|---|---|---|
| 0 | 945334 | 998173 | 947160 | 1052839 | 30 | 054665 | 001826 |
| 1 | 945376 | 998169 | 947206 | 1052793 | 29 | 054623 | 001830 |
| 2 | 945419 | 998166 | 947253 | 1052746 | 28 | 054580 | 001833 |
| 3 | 945461 | 998162 | 947299 | 1052700 | 27 | 054538 | 001837 |
| 4 | 945504 | 998158 | 947345 | 1052654 | 26 | 054496 | 001841 |
| 5 | 945546 | 998154 | 947391 | 1052608 | 25 | 054453 | 001845 |
| 6 | 945589 | 998151 | 947438 | 1052561 | 24 | 054410 | 001848 |
| 7 | 945631 | 998147 | 947484 | 1052515 | 23 | 054368 | 001852 |
| 8 | 945673 | 998143 | 947530 | 1052469 | 22 | 054326 | 001856 |
| 9 | 945716 | 998139 | 947576 | 1052423 | 21 | 054283 | 001860 |
| 0 | 945758 | 998136 | 947622 | 1052377 | 20 | 054241 | 001863 |
| 1 | 945800 | 998132 | 947668 | 1052331 | 19 | 054199 | 001867 |
| 2 | 945842 | 998128 | 947714 | 1052285 | 18 | 054157 | 001871 |
| 3 | 945884 | 998124 | 947760 | 1052239 | 17 | 054115 | 001875 |
| 4 | 945926 | 998120 | 947805 | 1052194 | 16 | 054073 | 001879 |
| 5 | 945968 | 998117 | 947851 | 1052148 | 15 | 054031 | 001882 |
| 6 | 946010 | 998113 | 947897 | 1052102 | 14 | 053989 | 001886 |
| 7 | 946052 | 998109 | 947942 | 1052056 | 13 | 053947 | 001890 |
| 8 | 946094 | 998105 | 947988 | 1052011 | 12 | 053905 | 001894 |
| 9 | 946136 | 998101 | 948024 | 1051965 | 11 | 053863 | 001898 |
| 0 | 946178 | 998098 | 948080 | 1051919 | 10 | 053821 | 001901 |
| 1 | 946219 | 998094 | 948125 | 1051874 | 9 | 053780 | 001905 |
| 2 | 946261 | 998090 | 948 71 | 1051828 | 8 | 053738 | 001909 |
| 3 | 946303 | 998086 | 948216 | 1051783 | 7 | 053696 | 001913 |
| 4 | 946344 | 998082 | 948262 | 1051737 | 6 | 053655 | 001917 |
| 5 | 946386 | 998078 | 948307 | 1051692 | 5 | 053613 | 001921 |
| 6 | 946427 | 998075 | 948352 | 1051647 | 4 | 053572 | 001924 |
| 7 | 946469 | 998071 | 948398 | 1051601 | 3 | 053530 | 001928 |
| 8 | 946510 | 998067 | 948443 | 1051556 | 2 | 053489 | 001932 |
| 9 | 946552 | 998063 | 948488 | 1051511 | 1 | 053447 | 001936 |
| 0 | 946593 | 998059 | 948533 | 1051466 | 0 | 053406 | 001940 |
| | Sine compl. | Sine. | Tangent complem | Tang. | | | |

| 17 | Sine. | Sine compl. | Tang. | Tangent complem. | | comm. ar. of sine | comm. ar. of tan. co |
|---|---|---|---|---|---|---|---|
| 0 | 946593 | 998059 | 948533 | 1051466 | 60 | 053406 | 001940 |
| 1 | 946634 | 998055 | 948579 | 1051420 | 59 | 053365 | 001945 |
| 2 | 946676 | 998051 | 948624 | 1051375 | 58 | 053323 | 001949 |
| 3 | 946717 | 998048 | 948669 | 1051330 | 57 | 053282 | 001951 |
| 4 | 946758 | 998044 | 948714 | 1051285 | 56 | 053241 | 001955 |
| 5 | 946799 | 998040 | 948759 | 1051240 | 55 | 053200 | 001959 |
| 6 | 946840 | 998036 | 948804 | 1051195 | 54 | 053159 | 001962 |
| 7 | 946881 | 998032 | 948849 | 1051150 | 53 | 053118 | 001967 |
| 8 | 946922 | 998 28 | 948894 | 1051105 | 52 | 053077 | 001971 |
| 9 | 946963 | 998024 | 948938 | 1051061 | 51 | 053036 | 001975 |
| 10 | 947004 | 998020 | 948983 | 1051016 | 50 | 052995 | 001979 |
| 11 | 947045 | 998016 | 949 28 | 1050971 | 49 | 052954 | 001983 |
| 12 | 947086 | 998012 | 949073 | 1050926 | 48 | 052913 | 001987 |
| 13 | 947127 | 998009 | 949118 | 1050882 | 47 | 052872 | 001991 |
| 14 | 947167 | 998005 | 949162 | 1050837 | 46 | 052832 | 001995 |
| 15 | 947208 | 998001 | 949207 | 1050792 | 45 | 052791 | 001999 |
| 16 | 947249 | 997997 | 949251 | 1050748 | 44 | 052750 | 002003 |
| 17 | 947289 | 997993 | 949296 | 1050703 | 43 | 052710 | 002007 |
| 18 | 947330 | 997989 | 949340 | 1050659 | 42 | 052669 | 002011 |
| 19 | 947370 | 997985 | 949385 | 1050614 | 41 | 052627 | 002015 |
| 20 | 947411 | 997981 | 949429 | 1050570 | 40 | 052588 | 002019 |
| 21 | 947451 | 997977 | 949474 | 1050525 | 39 | 052548 | 002023 |
| 22 | 947492 | 997973 | 949518 | 1050481 | 38 | 052507 | 002027 |
| 23 | 947532 | 997969 | 949562 | 1050437 | 37 | 052467 | 002031 |
| 24 | 947573 | 997965 | 949607 | 1050392 | 36 | 052426 | 002035 |
| 25 | 947613 | 997961 | 949651 | 1050348 | 35 | 052386 | 002039 |
| 26 | 947653 | 997957 | 949695 | 1050304 | 34 | 052346 | 002043 |
| 27 | 947693 | 997953 | 949739 | 1050260 | 33 | 052306 | 002047 |
| 28 | 947733 | 997949 | 949784 | 1050215 | 32 | 052266 | 002051 |
| 29 | 947774 | 997945 | 949828 | 105 171 | 31 | 052225 | 002055 |
| 30 | 947814 | 997941 | 949872 | 1050127 | 30 | 052185 | 002059 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 72 | | |

| | Sine. | Sine compl. | Tang. | Tangent complem. | | com. of fine | com. of fin. c. |
|---|---|---|---|---|---|---|---|
| 0 | 947814 | 997941 | 949872 | 1050127 | 30 | 052185 | 002058 |
| 1 | 947854 | 997937 | 949916 | 1050083 | 29 | 052145 | 002062 |
| 2 | 947894 | 997933 | 949960 | 1050039 | 28 | 052105 | 002066 |
| 3 | 947934 | 997929 | 950004 | 1049995 | 27 | 052065 | 002070 |
| 4 | 947974 | 997925 | 950048 | 1049951 | 26 | 052025 | 002074 |
| 5 | 948014 | 997921 | 950092 | 1049907 | 25 | 051985 | 002078 |
| 6 | 948054 | 997917 | 950135 | 1049864 | 24 | 051946 | 002082 |
| 7 | 948093 | 997913 | 950179 | 1049829 | 23 | 051906 | 002086 |
| 8 | 948133 | 997909 | 950223 | 1049776 | 22 | 051866 | 002090 |
| 9 | 948173 | 997905 | 950267 | 1049732 | 21 | 051826 | 002094 |
| 10 | 948212 | 997901 | 950310 | 1049689 | 20 | 051787 | 002098 |
| 11 | 948252 | 997897 | 950354 | 1049645 | 19 | 051747 | 002102 |
| 12 | 948292 | 997893 | 950398 | 1049601 | 18 | 051707 | 002106 |
| 13 | 948331 | 997889 | 950441 | 1049558 | 17 | 051668 | 002110 |
| 14 | 948371 | 997885 | 950485 | 1049514 | 16 | 051628 | 002114 |
| 15 | 948410 | 997881 | 950528 | 1049471 | 15 | 051589 | 002118 |
| 16 | 948450 | 997877 | 950572 | 1049427 | 14 | 051549 | 002122 |
| 17 | 948489 | 997873 | 950615 | 1049384 | 13 | 051510 | 002126 |
| 18 | 948528 | 997869 | 950659 | 1049340 | 12 | 051471 | 002130 |
| 19 | 948568 | 997865 | 950702 | 1049297 | 11 | 051431 | 002134 |
| 20 | 948607 | 997861 | 950746 | 1049253 | 10 | 051392 | 002138 |
| 21 | 948646 | 997857 | 950789 | 1049210 | 9 | 051353 | 002142 |
| 22 | 948685 | 997853 | 950832 | 1049167 | 8 | 051314 | 002146 |
| 23 | 948725 | 997849 | 950875 | 1049124 | 7 | 051274 | 002150 |
| 24 | 948764 | 997845 | 950919 | 1049080 | 6 | 051235 | 002154 |
| 25 | 948803 | 997841 | 950962 | 1049037 | 5 | 051196 | 002158 |
| 26 | 948842 | 997837 | 951005 | 1048994 | 4 | 051157 | 002162 |
| 27 | 948881 | 997832 | 951048 | 1048951 | 3 | 051118 | 002167 |
| 28 | 948920 | 997828 | 951091 | 1048908 | 2 | 051079 | 002171 |
| 29 | 948959 | 997824 | 951134 | 1048865 | 1 | 051040 | 002175 |
| 30 | 948998 | 997820 | 951177 | 1048822 | 0 | 051001 | 002179 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | | 72 | |

| 18 | Sine. | Sine compl. | Tang. | Tangent compem. | | com. er. of fine | com. of fin. |
|---|---|---|---|---|---|---|---|
| 0 | 948998 | 997820 | 951177 | 10488226 | 60 | 051001 | 00217 |
| 1 | 949037 | 997816 | 951220 | 10487779 | 59 | 050962 | 00218 |
| 2 | 949075 | 997812 | 951263 | 10487336 | 58 | 050924 | 00218 |
| 3 | 949114 | 997808 | 951306 | 10486893 | 57 | 050885 | 00219 |
| 4 | 949153 | 997804 | 951349 | 10486450 | 56 | 050846 | 00219 |
| 5 | 949192 | 997800 | 951392 | 10486007 | 55 | 050857 | 00219 |
| 6 | 949230 | 997795 | 951434 | 10485565 | 54 | 050769 | 00220 |
| 7 | 949269 | 997791 | 951477 | 10485122 | 53 | 050730 | 00220 |
| 8 | 949308 | 997787 | 951520 | 10484679 | 52 | 050691 | 00221 |
| 9 | 949346 | 997783 | 951563 | 10484236 | 51 | 050653 | 00221 |
| 10 | 949385 | 997779 | 951605 | 10483794 | 50 | 050614 | 00222 |
| 11 | 949423 | 997775 | 951648 | 10483351 | 49 | 050575 | 00222 |
| 12 | 949462 | 997771 | 951690 | 10482909 | 48 | 050537 | 00223 |
| 13 | 949500 | 997766 | 951733 | 10482466 | 47 | 050499 | 00223 |
| 14 | 949538 | 997762 | 951776 | 10482023 | 46 | 050461 | 00223 |
| 15 | 949577 | 997758 | 951818 | 10481581 | 45 | 050422 | 00224 |
| 16 | 949616 | 997754 | 951861 | 10481138 | 44 | 050384 | 00224 |
| 17 | 949654 | 997750 | 951903 | 10480696 | 43 | 050346 | 00225 |
| 18 | 949691 | 997746 | 951945 | 10480254 | 42 | 05030 8 | 00225 |
| 19 | 949730 | 997741 | 951988 | 10480111 | 41 | 050269 | 00225 |
| 20 | 949768 | 997737 | 952030 | 10479690 | 40 | 050231 | 00226 |
| 21 | 949806 | 997733 | 952072 | 10479248 | 39 | 050193 | 00226 |
| 22 | 949844 | 997729 | 952115 | 10478806 | 38 | 050155 | 00227 |
| 23 | 949882 | 997725 | 952157 | 10478364 | 37 | 050117 | 00227 |
| 24 | 949926 | 997720 | 952199 | 10478 0 | 36 | 050079 | 00227 |
| 25 | 949958 | 997716 | 952241 | 10477580 | 35 | 050041 | 00228 |
| 26 | 949996 | 997712 | 952283 | 10477139 | 34 | 050003 | 00228 |
| 27 | 950034 | 997708 | 952325 | 10476747 | 33 | 049965 | 00229 |
| 28 | 950072 | 997704 | 952367 | 10476306 | 32 | 049927 | 00229 |
| 29 | 950109 | 997699 | 952407 | 10475906 | 31 | 049890 | 00230 |
| 30 | 950147 | 997695 | 952451 | 10475486 | 30 | 049852 | 00230 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 71 | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine | com. ar of fin. c 6 |
|---|---|---|---|---|---|---|
| 950147 | 997695 | 952451 | 1047548 | 30 | 049852 | 002304 |
| 950185 | 997691 | 952493 | 1047506 | 29 | 049814 | 002308 |
| 950223 | 997687 | 952535 | 1047464 | 28 | 049776 | 002312 |
| 950260 | 997682 | 952577 | 1047422 | 27 | 049739 | 002317 |
| 950298 | 997678 | 952619 | 1047380 | 26 | 049701 | 002321 |
| 950335 | 997674 | 952661 | 1047338 | 25 | 049664 | 002325 |
| 950373 | 997670 | 952703 | 1047296 | 24 | 049626 | 002329 |
| 950411 | 997665 | 952745 | 1047254 | 23 | 049588 | 002334 |
| 950448 | 997661 | 952786 | 1047213 | 22 | 049551 | 002338 |
| 950485 | 997657 | 952828 | 1047171 | 21 | 049514 | 002342 |
| 950523 | 997653 | 952870 | 1047129 | 20 | 049476 | 002346 |
| 950560 | 997641 | 952911 | 1047088 | 19 | 049439 | 002351 |
| 950598 | 997644 | 952953 | 1047046 | 18 | 049401 | 002355 |
| 950635 | 997640 | 952995 | 1047004 | 17 | 049364 | 002359 |
| 950672 | 997636 | 953036 | 1046963 | 16 | 049327 | 002363 |
| 950709 | 997631 | 953078 | 1046921 | 15 | 049290 | 002368 |
| 950747 | 997627 | 953119 | 1046880 | 14 | 049252 | 002372 |
| 950784 | 997623 | 953161 | 1046838 | 13 | 049215 | 002376 |
| 950821 | 997618 | 953202 | 1046797 | 12 | 049178 | 002381 |
| 950858 | 997614 | 953243 | 1046756 | 11 | 049141 | 002385 |
| 950895 | 997610 | 953285 | 1046714 | 10 | 049104 | 002389 |
| 950932 | 997605 | 953326 | 1046673 | 9 | 049067 | 002394 |
| 950969 | 997601 | 953367 | 1046632 | 8 | 049030 | 002398 |
| 951006 | 997597 | 953409 | 1046590 | 7 | 048993 | 002402 |
| 951042 | 997593 | 953450 | 1046549 | 6 | 048956 | 002406 |
| 951080 | 997588 | 953491 | 1046508 | 5 | 048919 | 002411 |
| 951117 | 997584 | 953532 | 1046467 | 4 | 048882 | 002415 |
| 951152 | 997580 | 953573 | 1046426 | 3 | 048846 | 002419 |
| 951190 | 997575 | 953615 | 1046384 | 2 | 048809 | 002424 |
| 951227 | 997571 | 953656 | 1046343 | 1 | 048772 | 002428 |
| 951264 | 997567 | 953697 | 1046302 | 0 | 048735 | 002432 |
| Sine compl. | Sine. | Tangent. complem | Tang. | | | |

| 19 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. of sine. | com. of ta. |
|---|---|---|---|---|---|---|---|
| 0 | 951264 | 997567 | 953697 | 1046302 | 60 | 048735 | 0024 |
| 1 | 951300 | 997562 | 953738 | 1046261 | 59 | 048699 | 0024 |
| 2 | 951337 | 997558 | 953779 | 1046220 | 58 | 048662 | 0024 |
| 3 | 951374 | 997553 | 953820 | 1046179 | 57 | 048625 | 0024 |
| 4 | 951410 | 997549 | 953861 | 1046138 | 56 | 048589 | 0024 |
| 5 | 951447 | 997545 | 953902 | 1046098 | 55 | 048552 | 0024 |
| 6 | 951483 | 997540 | 953942 | 1046056 | 54 | 048516 | 0025 |
| 7 | 951520 | 997536 | 953983 | 1046016 | 53 | 048479 | 0024 |
| 8 | 951556 | 997532 | 954024 | 1045975 | 52 | 048443 | 0024 |
| 9 | 951593 | 997527 | 954065 | 1045934 | 51 | 048407 | 0025 |
| 10 | 951629 | 997523 | 954106 | 1045893 | 50 | 048370 | 0024 |
| 11 | 951665 | 997518 | 954145 | 1045852 | 49 | 048334 | 0025 |
| 12 | 951701 | 997514 | 954187 | 1045812 | 48 | 048298 | 0024 |
| 13 | 951738 | 997510 | 954228 | 1045771 | 47 | 048261 | 0025 |
| 14 | 951774 | 997505 | 954268 | 1045731 | 46 | 048225 | 0024 |
| 15 | 951810 | 997501 | 954309 | 1045690 | 45 | 048189 | 0024 |
| 16 | 951846 | 997496 | 954349 | 1045650 | 44 | 048253 | 0025 |
| 17 | 951882 | 997492 | 954390 | 1045609 | 43 | 048117 | 0025 |
| 18 | 951919 | 997488 | 954431 | 1045569 | 42 | 048080 | 0025 |
| 19 | 951955 | 997483 | 954471 | 1045528 | 41 | 048044 | 0025 |
| 20 | 951991 | 997479 | 954511 | 1045488 | 40 | 048008 | 0025 |
| 21 | 952027 | 997474 | 954552 | 1045447 | 39 | 047972 | 0025 |
| 22 | 952063 | 997470 | 954592 | 1045407 | 38 | 047936 | 0025 |
| 23 | 952098 | 997465 | 954633 | 1045366 | 37 | 047901 | 0025 |
| 24 | 952134 | 997461 | 954673 | 1045326 | 36 | 047865 | 0025 |
| 25 | 952170 | 997456 | 954713 | 1045286 | 35 | 047829 | 0025 |
| 26 | 952206 | 997452 | 954754 | 1045245 | 34 | 047793 | 0025 |
| 27 | 952242 | 997448 | 954794 | 1045205 | 33 | 047757 | 0025 |
| 28 | 952278 | 997443 | 954834 | 1045165 | 32 | 047721 | 0025 |
| 29 | 952313 | 997439 | 954874 | 1045125 | 31 | 047686 | 0025 |
| 30 | 952349 | 997434 | 954914 | 1045085 | 30 | 047650 | 0025 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 79 | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. of fine | com. of fin. ch. |
|---|---|---|---|---|---|---|
| 952349 | 997434 | 954914 | 1045085 | 30 | 047650 | 002565 |
| 952385 | 997430 | 954955 | 1045045 | 29 | 047614 | 002569 |
| 952420 | 997425 | 954995 | 1045004 | 28 | 047579 | 002574 |
| 952456 | 997421 | 955035 | 1044964 | 27 | 047543 | 002578 |
| 952491 | 997416 | 955075 | 1044924 | 26 | 047508 | 002583 |
| 952527 | 997412 | 955115 | 1044884 | 25 | 047472 | 002587 |
| 952562 | 997407 | 955155 | 1044844 | 24 | 047437 | 002592 |
| 952598 | 997403 | 955195 | 1044804 | 23 | 047401 | 002596 |
| 952633 | 997398 | 955235 | 1044764 | 22 | 047366 | 002601 |
| 952669 | 997394 | 955275 | 1044724 | 21 | 047330 | 002605 |
| 952704 | 997389 | 955314 | 1044785 | 20 | 047295 | 002610 |
| 952739 | 997385 | 955354 | 1044645 | 19 | 047260 | 002614 |
| 952775 | 997380 | 955394 | 1044603 | 18 | 047224 | 002619 |
| 952810 | 997376 | 955434 | 1044565 | 17 | 047189 | 002624 |
| 952845 | 997371 | 955474 | 1044525 | 16 | 047154 | 002628 |
| 952880 | 997366 | 955513 | 1044486 | 15 | 047119 | 002632 |
| 952916 | 997362 | 955552 | 1044446 | 14 | 047083 | 002637 |
| 952951 | 997358 | 959593 | 1044406 | 13 | 047048 | 002641 |
| 952986 | 997353 | 955632 | 1044367 | 12 | 047013 | 002646 |
| 953021 | 997349 | 955672 | 1044327 | 11 | 046978 | 002651 |
| 953056 | 997344 | 955712 | 1044287 | 10 | 046943 | 002655 |
| 953091 | 997339 | 955751 | 1044248 | 9 | 046908 | 002660 |
| 953126 | 997335 | 955791 | 1044208 | 8 | 046873 | 002664 |
| 953161 | 997330 | 955830 | 1044169 | 7 | 046838 | 002669 |
| 953196 | 997326 | 955870 | 1044129 | 6 | 046802 | 002673 |
| 953231 | 997321 | 955909 | 1044090 | 5 | 046768 | 002678 |
| 953266 | 997316 | 955949 | 1044050 | 4 | 046738 | 002683 |
| 953300 | 997312 | 955981 | 1044011 | 3 | 046699 | 002687 |
| 953335 | 997307 | 956027 | 1043972 | 2 | 046664 | 002692 |
| 953376 | 997303 | 956067 | 1043932 | 1 | 046629 | 002696 |
| 953405 | 997298 | 956106 | 1043891 | 0 | 046594 | 002701 |
| Sine compl. | Sine. | Tangent. complem. | Tang. | 70 | | |

| 30 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine. | com. ar of tan. |
|---|---|---|---|---|---|---|---|
| 0 | 953405 | 997298 | 956106 | 1043893 | 60 | 046594 | 00270 |
| 1 | 953439 | 997293 | 956145 | 1043854 | 59 | 046560 | 00270 |
| 2 | 953474 | 997289 | 956185 | 1043814 | 58 | 046525 | 00271 |
| 3 | 953509 | 997284 | 956224 | 1043775 | 57 | 046490 | 00271 |
| 4 | 953543 | 997280 | 956263 | 1043736 | 56 | 046456 | 00271 |
| 5 | 953578 | 997275 | 956302 | 1043697 | 55 | 046421 | 00272 |
| 6 | 953612 | 997270 | 956341 | 1043657 | 54 | 046387 | 00272 |
| 7 | 953647 | 997266 | 956381 | 1043618 | 53 | 046352 | 00273 |
| 8 | 953681 | 997261 | 956420 | 1043579 | 52 | 046318 | 00273 |
| 9 | 953716 | 997257 | 956459 | 1043540 | 51 | 046283 | 00274 |
| 10 | 953750 | 997252 | 956498 | 1043501 | 50 | 046249 | 00274 |
| 11 | 953785 | 997247 | 956537 | 1043462 | 49 | 046214 | 00275 |
| 12 | 953819 | 997243 | 956576 | 1043423 | 48 | 046180 | 00275 |
| 13 | 953853 | 997238 | 956615 | 1043384 | 47 | 046146 | 00276 |
| 14 | 953888 | 997233 | 956654 | 1043345 | 46 | 046111 | 00276 |
| 15 | 953922 | 997229 | 956693 | 1043366 | 45 | 046077 | 00277 |
| 16 | 953956 | 997224 | 956732 | 1043267 | 44 | 046043 | 00277 |
| 17 | 953990 | 997219 | 956770 | 1043229 | 43 | 046009 | 00278 |
| 18 | 954024 | 997215 | 956809 | 1043190 | 42 | 045975 | 00278 |
| 19 | 954059 | 997210 | 956848 | 1043151 | 41 | 045940 | 00279 |
| 20 | 954093 | 997205 | 956887 | 1043112 | 40 | 045906 | 00279 |
| 21 | 954127 | 997201 | 956926 | 1043073 | 39 | 045872 | 00279 |
| 22 | 954261 | 997196 | 956964 | 1043035 | 38 | 045838 | 00280 |
| 23 | 954195 | 997191 | 957003 | 1042996 | 37 | 045804 | 00280 |
| 24 | 954229 | 997187 | 957041 | 1042957 | 36 | 045770 | 00281 |
| 25 | 954263 | 997182 | 957080 | 1042919 | 35 | 045736 | 00281 |
| 26 | 954297 | 997177 | 957119 | 1042880 | 34 | 045702 | 00282 |
| 27 | 954331 | 997172 | 957158 | 1042841 | 33 | 045668 | 00282 |
| 28 | 954364 | 997168 | 957196 | 1042803 | 32 | 045635 | 00283 |
| 29 | 954398 | 997163 | 957235 | 1042764 | 31 | 045601 | 00283 |
| 30 | 954432 | 997158 | 957273 | 1042726 | 30 | 045567 | 00284 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of sine | com. ar of tan. adj. |
|---|---|---|---|---|---|---|
| 954432 | 997158 | 957273 | 1042726 | 30 | 045567 | 002841 |
| 954466 | 997154 | 957312 | 1042687 | 29 | 045533 | 002845 |
| 954500 | 997149 | 957350 | 1042649 | 28 | 045499 | 002859 |
| 954533 | 997144 | 957389 | 1042610 | 27 | 045466 | 002855 |
| 954567 | 997139 | 957427 | 1042572 | 26 | 045432 | 002860 |
| 954601 | 997135 | 957466 | 1042533 | 25 | 045398 | 002864 |
| 954634 | 997130 | 957504 | 1042495 | 24 | 045365 | 002869 |
| 954668 | 997125 | 957542 | 1042457 | 23 | 045331 | 002874 |
| 954701 | 997120 | 957581 | 1042418 | 22 | 045298 | 002879 |
| 954735 | 997116 | 957619 | 1042380 | 21 | 045264 | 002883 |
| 954768 | 997111 | 957657 | 1042342 | 20 | 045231 | 002888 |
| 954892 | 997106 | 957695 | 1042304 | 19 | 045197 | 002893 |
| 954835 | 997101 | 957734 | 1042265 | 18 | 045164 | 002898 |
| 954869 | 997097 | 957772 | 1042227 | 17 | 045130 | 002902 |
| 954902 | 997092 | 957810 | 1042189 | 16 | 045097 | 002907 |
| 954936 | 997087 | 957848 | 1042151 | 15 | 045063 | 002912 |
| 954969 | 997082 | 957886 | 1042113 | 14 | 045030 | 002917 |
| 955002 | 997077 | 957924 | 1042075 | 13 | 044997 | 002922 |
| 955035 | 997073 | 957962 | 1042037 | 12 | 044964 | 002926 |
| 955069 | 997068 | 958000 | 1041999 | 11 | 044930 | 002931 |
| 955102 | 997063 | 958038 | 1041961 | 10 | 044807 | 002936 |
| 955135 | 997058 | 958077 | 1041923 | 9 | 044864 | 002941 |
| 955168 | 997053 | 958114 | 1041885 | 8 | 044831 | 002946 |
| 955201 | 997049 | 958152 | 1041847 | 7 | 044798 | 002950 |
| 955234 | 997044 | 958190 | 1041809 | 6 | 044765 | 002955 |
| 955268 | 997039 | 958228 | 1041771 | 5 | 044731 | 002960 |
| 955301 | 997034 | 958266 | 1041733 | 4 | 044698 | 002965 |
| 955334 | 997029 | 958304 | 1041695 | 3 | 044665 | 002970 |
| 955367 | 997024 | 958342 | 1041657 | 2 | 044632 | 002975 |
| 955399 | 997020 | 958379 | 1041620 | 1 | 044600 | 002979 |
| 955432 | 997015 | 958417 | 1041582 | 0 | 044567 | 002984 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| 21 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. to of sine | |
|---|---|---|---|---|---|---|---|
| 0 | 955432 | 997015 | 958417 | 1041582 | 60 | 044567 | 00 |
| 1 | 955465 | 997010 | 958455 | 1041544 | 59 | 044534 | 00 |
| 2 | 955498 | 997005 | 958493 | 1041506 | 58 | 044501 | 00 |
| 3 | 955531 | 997000 | 958530 | 1041469 | 57 | 044468 | 00 |
| 4 | 955564 | 996995 | 958598 | 1041431 | 56 | 044435 | 00 |
| 5 | 955597 | 996991 | 958606 | 1041393 | 55 | 044402 | 00 |
| 6 | 955625 | 996986 | 958643 | 1041356 | 54 | 044370 | 00 |
| 7 | 955662 | 996981 | 958681 | 1041318 | 53 | 044337 | 00 |
| 8 | 955695 | 996976 | 958719 | 1041280 | 52 | 044304 | 00 |
| 9 | 955727 | 996971 | 958756 | 1041243 | 51 | 044272 | 00 |
| 10 | 955760 | 996966 | 958794 | 1041205 | 50 | 044230 | 00 |
| 11 | 955793 | 996961 | 958831 | 1041168 | 49 | 044206 | 00 |
| 12 | 955825 | 996956 | 958869 | 1041130 | 48 | 044174 | 00 |
| 13 | 955858 | 996951 | 958906 | 1041093 | 47 | 044141 | 00 |
| 14 | 955890 | 996946 | 958944 | 1041055 | 46 | 044109 | 00 |
| 15 | 955923 | 996941 | 958981 | 1041018 | 45 | 044076 | 00 |
| 16 | 955955 | 996937 | 959018 | 1040981 | 44 | 044044 | 00 |
| 17 | 956988 | 996932 | 959056 | 1040943 | 43 | 044011 | 00 |
| 18 | 956020 | 996927 | 959093 | 1040906 | 42 | 043979 | 00 |
| 19 | 956053 | 996922 | 959130 | 1040869 | 41 | 043946 | 00 |
| 20 | 956085 | 996917 | 959168 | 1040831 | 40 | 043914 | 00 |
| 21 | 956117 | 996912 | 959205 | 1040794 | 39 | 043882 | 00 |
| 22 | 956150 | 996907 | 959242 | 1040757 | 38 | 043849 | 00 |
| 23 | 956182 | 996902 | 959279 | 1040720 | 37 | 043817 | 00 |
| 24 | 956214 | 996897 | 959317 | 1040682 | 36 | 043785 | 00 |
| 25 | 956246 | 996892 | 959354 | 1040645 | 35 | 043753 | 00 |
| 26 | 956279 | 996887 | 959391 | 1040608 | 34 | 043720 | 00 |
| 27 | 956311 | 996882 | 959428 | 1040571 | 33 | 043688 | 00 |
| 28 | 956343 | 996877 | 959465 | 1040534 | 32 | 043656 | 00 |
| 29 | 956375 | 996872 | 959502 | 1040497 | 31 | 043624 | 00 |
| 30 | 956407 | 996867 | 959539 | 1040460 | 30 | 043592 | 00 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 68 | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of sine | com. ar of tan. 68. |
|---|---|---|---|---|---|---|
| 56407 | 996867 | 959539 | 1040460 | 30 | 043592 | 003134 |
| 56439 | 996862 | 959576 | 1040423 | 29 | 043560 | 003137 |
| 56471 | 996857 | 959613 | 1040386 | 28 | 043528 | 003142 |
| 56503 | 996854 | 959650 | 1040349 | 27 | 043496 | 003147 |
| 56535 | 996847 | 959687 | 1040312 | 26 | 043464 | 003152 |
| 56567 | 996842 | 959724 | 1040275 | 25 | 043432 | 003157 |
| 56599 | 996837 | 959761 | 1040238 | 24 | 043400 | 003162 |
| 56631 | 996832 | 959798 | 1040201 | 23 | 043368 | 003167 |
| 56663 | 996827 | 959815 | 1040164 | 22 | 043336 | 003172 |
| 56695 | 996822 | 959872 | 1040127 | 21 | 043304 | 003177 |
| 56726 | 996817 | 959909 | 1040090 | 20 | 043273 | 003182 |
| 56753 | 996812 | 959945 | 1040054 | 19 | 043241 | 003187 |
| 56790 | 996807 | 959982 | 1040017 | 18 | 043209 | 003192 |
| 56822 | 996802 | 960019 | 1039980 | 17 | 043177 | 003197 |
| 56853 | 996797 | 960056 | 1039943 | 16 | 043146 | 003202 |
| 56885 | 996792 | 960092 | 1039907 | 15 | 043114 | 003207 |
| 56917 | 996787 | 960129 | 1039870 | 14 | 043082 | 003212 |
| 56948 | 996782 | 960166 | 1039833 | 13 | 043051 | 003217 |
| 56980 | 996777 | 960202 | 1039797 | 12 | 043019 | 003222 |
| 57012 | 996772 | 960239 | 1039760 | 11 | 042988 | 003227 |
| 57043 | 996767 | 960276 | 1039723 | 10 | 042956 | 003232 |
| 57075 | 996762 | 960312 | 1039687 | 9 | 042924 | 003237 |
| 57106 | 996757 | 960349 | 1039650 | 8 | 042893 | 003242 |
| 57138 | 996752 | 960385 | 1039614 | 7 | 042861 | 003247 |
| 57169 | 996747 | 960422 | 1039577 | 6 | 042830 | 003252 |
| 57200 | 996742 | 960458 | 1039541 | 5 | 052799 | 003257 |
| 57232 | 996736 | 960495 | 1039504 | 4 | 042767 | 003262 |
| 57263 | 996731 | 960531 | 1039468 | 3 | 042736 | 003268 |
| 57294 | 996726 | 960568 | 1039431 | 2 | 042705 | 003273 |
| 57326 | 996721 | 960604 | 1039395 | 1 | 042673 | 003278 |
| 57357 | 996716 | 960640 | 1039359 | 0 | 042642 | 003283 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | 68 | |

| 22 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. æ. of sine | c. of |
|---|---|---|---|---|---|---|---|
| 0 | 957357 | 996716 | 960640 | 1039359 | 60 | 042642 | 00 |
| 1 | 957388 | 996711 | 960677 | 1039322 | 59 | 042611 | 00 |
| 2 | 957420 | 996706 | 960713 | 1039286 | 58 | 042579 | 00 |
| 3 | 957451 | 996701 | 960749 | 1039250 | 57 | 042548 | 00 |
| 4 | 957482 | 996696 | 960786 | 1039213 | 56 | 042517 | 00 |
| 5 | 957513 | 996691 | 960822 | 1039177 | 55 | 042486 | 00 |
| 6 | 957544 | 996685 | 960858 | 1039141 | 54 | 042455 | 00 |
| 7 | 957575 | 996680 | 960895 | 1039104 | 53 | 042424 | 00 |
| 8 | 957606 | 996675 | 960931 | 1039068 | 52 | 042393 | 00 |
| 9 | 957637 | 996670 | 960967 | 1039032 | 51 | 042362 | 00 |
| 10 | 957668 | 996665 | 961003 | 1038996 | 50 | 042331 | 00 |
| 11 | 957699 | 996660 | 961039 | 1038960 | 49 | 042300 | 00 |
| 12 | 957730 | 996655 | 961075 | 1038924 | 48 | 042269 | 00 |
| 13 | 957761 | 996649 | 961119 | 1038888 | 47 | 042238 | 00 |
| 14 | 957792 | 996641 | 961181 | 1038851 | 46 | 042207 | 00 |
| 15 | 957823 | 996639 | 961148 | 1038815 | 45 | 042176 | 00 |
| 16 | 957854 | 996634 | 961220 | 1038779 | 44 | 042145 | 00 |
| 17 | 957885 | 996629 | 961256 | 1038743 | 43 | 042114 | 00 |
| 18 | 957916 | 996624 | 961292 | 1038707 | 42 | 042083 | 00 |
| 19 | 957946 | 996618 | 961328 | 1038671 | 41 | 042053 | 00 |
| 20 | 957977 | 996613 | 961364 | 1038635 | 40 | 042022 | 00 |
| 21 | 958008 | 996608 | 991400 | 1038600 | 39 | 041991 | 00 |
| 22 | 958039 | 996602 | 961435 | 1038564 | 38 | 041960 | 00 |
| 23 | 958069 | 996598 | 961471 | 1038528 | 37 | 041930 | 00 |
| 24 | 958100 | 996592 | 961507 | 1038492 | 36 | 041899 | 00 |
| 25 | 958131 | 996587 | 961543 | 1038456 | 35 | 041868 | 00 |
| 26 | 958161 | 996582 | 961579 | 1038420 | 34 | 041838 | 00 |
| 27 | 958192 | 996577 | 961615 | 1038384 | 33 | 041807 | 00 |
| 28 | 958222 | 996571 | 961650 | 1038349 | 32 | 041777 | 00 |
| 29 | 958253 | 996566 | 961686 | 1038313 | 31 | 041746 | 00 |
| 30 | 958283 | 996561 | 961722 | 1038277 | 30 | 041716 | 00 |
| | Sine comple. | Sine. | Tangen. comple. | Tang. | | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | comm. of sine | comm. of tan. &c. |
|---|---|---|---|---|---|---|
| 958283 | 996561 | 961722 | 1038277 | 30 | 041716 | 003438 |
| 958314 | 996556 | 961758 | 1038241 | 29 | 041685 | 003443 |
| 958344 | 996551 | 961794 | 1038206 | 28 | 041655 | 003448 |
| 958375 | 996545 | 961829 | 1038170 | 27 | 041624 | 003454 |
| 958405 | 996540 | 961865 | 1038134 | 26 | 041594 | 003459 |
| 958436 | 996535 | 961900 | 1038099 | 25 | 041563 | 003464 |
| 958466 | 996530 | 961936 | 1038063 | 24 | 041533 | 003469 |
| 958496 | 996524 | 961972 | 1038027 | 23 | 041503 | 003475 |
| 958527 | 996519 | 962007 | 1037992 | 22 | 041472 | 003480 |
| 958557 | 996514 | 962043 | 1037956 | 21 | 041442 | 003485 |
| 958587 | 996508 | 962078 | 1037921 | 20 | 041412 | 003491 |
| 958617 | 996503 | 962114 | 1037885 | 19 | 041382 | 003496 |
| 958648 | 996498 | 962149 | 1037850 | 18 | 041351 | 003501 |
| 958678 | 996493 | 962185 | 1037814 | 17 | 041321 | 003506 |
| 958708 | 996487 | 962220 | 1037779 | 16 | 041291 | 003512 |
| 958738 | 996482 | 962256 | 1037743 | 15 | 041261 | 003517 |
| 958768 | 996477 | 962291 | 1037708 | 14 | 041231 | 003522 |
| 958798 | 996471 | 962326 | 1037673 | 13 | 041201 | 003528 |
| 958828 | 996466 | 962362 | 1037637 | 12 | 041171 | 003533 |
| 958858 | 996461 | 962398 | 1037602 | 11 | 041141 | 003538 |
| 958888 | 996456 | 962432 | 1037567 | 10 | 041111 | 003543 |
| 958918 | 996450 | 962468 | 1037531 | 9 | 041081 | 003549 |
| 958948 | 996445 | 962503 | 1037495 | 8 | 041051 | 003554 |
| 958978 | 996440 | 962538 | 1037461 | 7 | 041021 | 003559 |
| 959008 | 996434 | 962574 | 1037425 | 6 | 040991 | 003565 |
| 959038 | 996429 | 962609 | 1037390 | 5 | 040961 | 003570 |
| 959068 | 996424 | 962644 | 1037351 | 4 | 040931 | 003575 |
| 959098 | 996418 | 962679 | 1037320 | 3 | 040901 | 003581 |
| 959128 | 996413 | 962714 | 1037285 | 2 | 040871 | 003586 |
| 959158 | 996407 | 962750 | 1037249 | 1 | 040841 | 003592 |
| 959187 | 996402 | 962785 | 1037214 | 0 | 040812 | 003597 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| 23 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. to of sine | com. of ta. |
|---|---|---|---|---|---|---|---|
| 0 | 959187 | 996402 | 962785 | 1037214 | 60 | 040812 | 0037 |
| 1 | 959217 | 996397 | 962820 | 1037179 | 59 | 040782 | 0037 |
| 2 | 959247 | 996391 | 962855 | 1037144 | 58 | 040752 | 0037 |
| 3 | 959276 | 996386 | 962890 | 1037109 | 57 | 040723 | 0037 |
| 4 | 959306 | 996381 | 962925 | 1037074 | 56 | 040693 | 0037 |
| 5 | 959336 | 996375 | 962960 | 1037039 | 55 | 040663 | 0037 |
| 6 | 959365 | 996370 | 962995 | 1037004 | 54 | 040634 | 0037 |
| 7 | 959395 | 996364 | 963030 | 1036969 | 53 | 040604 | 0037 |
| 8 | 959425 | 996356 | 963065 | 1036934 | 52 | 040574 | 0037 |
| 9 | 959454 | 996354 | 963100 | 1036899 | 51 | 040545 | 0037 |
| 10 | 959484 | 996348 | 963135 | 1036864 | 50 | 040515 | 0037 |
| 11 | 959513 | 996343 | 963170 | 1036829 | 49 | 040486 | 0037 |
| 12 | 959543 | 996337 | 963205 | 1036794 | 48 | 040456 | 0037 |
| 13 | 959572 | 996332 | 963240 | 1036759 | 47 | 040427 | 0037 |
| 14 | 959602 | 996327 | 963275 | 1036724 | 46 | 040397 | 0037 |
| 15 | 959631 | 996321 | 963309 | 1036690 | 45 | 040368 | 0037 |
| 16 | 959660 | 996316 | 963344 | 1036655 | 44 | 040339 | 0037 |
| 17 | 959690 | 996310 | 963379 | 1036620 | 43 | 040309 | 0037 |
| 18 | 959719 | 996305 | 963414 | 1036585 | 42 | 040280 | 0037 |
| 19 | 959748 | 996299 | 963449 | 1036550 | 41 | 040251 | 0037 |
| 20 | 959778 | 996294 | 963483 | 1036516 | 40 | 040221 | 0037 |
| 21 | 959807 | 996289 | 963518 | 1036481 | 39 | 040192 | 0037 |
| 22 | 959836 | 996283 | 963553 | 1036446 | 38 | 040163 | 0037 |
| 23 | 959866 | 996278 | 963587 | 1036412 | 37 | 040133 | 0037 |
| 24 | 959895 | 996272 | 963622 | 1036377 | 36 | 040104 | 0037 |
| 25 | 959924 | 996267 | 963657 | 1036342 | 35 | 040075 | 0037 |
| 26 | 959953 | 996261 | 963691 | 1036308 | 34 | 040046 | 0037 |
| 27 | 959982 | 996256 | 963726 | 1036273 | 33 | 040017 | 0037 |
| 28 | 960011 | 996250 | 963761 | 1036238 | 32 | 039988 | 0037 |
| 29 | 960040 | 996245 | 963795 | 1036204 | 31 | 039959 | 0037 |
| 30 | 960069 | 996239 | 963830 | 1036169 | 30 | 039930 | 0037 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 66 | | |

| 3 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of sine | com. ar of tan. |
|---|---|---|---|---|---|---|---|
| 0 | 960069 | 996239 | 963830 | 1036169 | 30 | 039920 | 003760 |
| 1 | 960099 | 996234 | 963864 | 1036135 | 29 | 039900 | 003765 |
| 2 | 960128 | 996228 | 963899 | 1036100 | 28 | 039871 | 003771 |
| 3 | 960157 | 996223 | 963933 | 1036066 | 27 | 039842 | 003776 |
| 4 | 960186 | 996217 | 963968 | 1036031 | 26 | 039814 | 003782 |
| 5 | 960214 | 996212 | 964002 | 1035997 | 25 | 039785 | 003787 |
| 6 | 960243 | 996206 | 964037 | 1035962 | 24 | 039759 | 003793 |
| 7 | 960272 | 996201 | 964071 | 1035928 | 23 | 039727 | 003798 |
| 8 | 960301 | 996195 | 964105 | 1035894 | 22 | 039698 | 003804 |
| 9 | 960330 | 996190 | 964140 | 1035859 | 21 | 039669 | 003809 |
| 0 | 960359 | 996184 | 964174 | 1035825 | 20 | 039640 | 003815 |
| 1 | 960388 | 996179 | 964209 | 1035790 | 19 | 039611 | 003820 |
| 2 | 960416 | 996173 | 964243 | 1035756 | 18 | 039583 | 003826 |
| 3 | 960445 | 996168 | 964277 | 1035722 | 17 | 039554 | 003832 |
| 4 | 960474 | 996162 | 964312 | 1035687 | 16 | 039525 | 003837 |
| 5 | 960503 | 996156 | 964346 | 1035653 | 15 | 039496 | 003843 |
| 6 | 960531 | 996151 | 964380 | 1035619 | 14 | 039468 | 003848 |
| 7 | 960560 | 996145 | 964414 | 1035585 | 13 | 039439 | 003854 |
| 8 | 960587 | 996140 | 964449 | 1035550 | 12 | 039410 | 003859 |
| 9 | 960617 | 996134 | 964483 | 1035516 | 11 | 039382 | 003865 |
| 0 | 960646 | 996129 | 964517 | 1035482 | 10 | 039353 | 003870 |
| 1 | 960675 | 996123 | 964551 | 1035448 | 9 | 039324 | 003876 |
| 2 | 960703 | 996117 | 964585 | 1035414 | 8 | 039296 | 003882 |
| 3 | 960732 | 996112 | 964619 | 1035380 | 7 | 039267 | 003887 |
| 4 | 960760 | 996106 | 964654 | 1035346 | 6 | 039239 | 003893 |
| 5 | 960789 | 996101 | 964688 | 1035311 | 5 | 039210 | 003898 |
| 6 | 960817 | 996095 | 964722 | 1035277 | 4 | 039182 | 003904 |
| 7 | 960846 | 996089 | 964756 | 1035243 | 3 | 039153 | 003910 |
| 8 | 960874 | 996084 | 964790 | 1035209 | 2 | 039125 | 003915 |
| 9 | 960902 | 996078 | 964824 | 1035175 | 1 | 039097 | 003921 |
| 0 | 960931 | 996073 | 964858 | 1035141 | 0 | 039068 | 003926 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 66 | | |

| 24 | Sine. | Sine compl. | Tang. | Tangent compem. | | com. ar. of sine | com. ar. of ta. |
|---|---|---|---|---|---|---|---|
| 0 | 960931 | 996073 | 964858 | 1035141 | 60 | 039068 | 00392 |
| 1 | 960959 | 996067 | 964892 | 1035107 | 59 | 039040 | 00393 |
| 2 | 960988 | 996061 | 964926 | 1035073 | 58 | 039011 | 00393 |
| 3 | 961016 | 996056 | 964960 | 1035039 | 57 | 038983 | 00394 |
| 4 | 961044 | 996050 | 964994 | 1035005 | 56 | 038955 | 00394 |
| 5 | 961072 | 996044 | 965028 | 1034971 | 55 | 038927 | 00395 |
| 6 | 961101 | 996039 | 965061 | 1034938 | 54 | 038898 | 00396 |
| 7 | 961129 | 996033 | 965095 | 1034904 | 53 | 038870 | 00396 |
| 8 | 961157 | 996027 | 965129 | 1034870 | 52 | 038842 | 00397 |
| 9 | 961185 | 996022 | 965163 | 1034836 | 51 | 038814 | 00397 |
| 10 | 961213 | 996016 | 965197 | 1034802 | 50 | 038786 | 00398 |
| 11 | 961242 | 996010 | 965231 | 1034768 | 49 | 038757 | 00398 |
| 12 | 961270 | 996005 | 965265 | 1034734 | 48 | 038729 | 00399 |
| 13 | 961298 | 995999 | 965298 | 1034701 | 47 | 038701 | 00400 |
| 14 | 961326 | 995993 | 965332 | 1034667 | 46 | 038673 | 00400 |
| 15 | 961354 | 995988 | 965366 | 1034633 | 45 | 038645 | 00401 |
| 16 | 961382 | 995982 | 965400 | 1034599 | 44 | 038617 | 00401 |
| 17 | 961410 | 995976 | 965433 | 1034566 | 43 | 038589 | 00402 |
| 18 | 961438 | 995972 | 965467 | 1034532 | 42 | 038561 | 00402 |
| 19 | 961466 | 995965 | 665501 | 1034498 | 41 | 038533 | 00403 |
| 20 | 961494 | 995959 | 965534 | 1034465 | 40 | 038505 | 00403 |
| 21 | 961522 | 995953 | 965568 | 1034431 | 39 | 038477 | 00404 |
| 22 | 961550 | 995948 | 965602 | 1034397 | 38 | 038449 | 00404 |
| 23 | 961578 | 995942 | 965635 | 1034364 | 37 | 038421 | 00405 |
| 24 | 961605 | 995936 | 965669 | 1034330 | 36 | 038394 | 00405 |
| 25 | 961633 | 995931 | 965702 | 1034397 | 35 | 038366 | 00406 |
| 26 | 961666 | 995925 | 965736 | 1034263 | 34 | 038338 | 00406 |
| 27 | 961684 | 995919 | 965769 | 1034230 | 33 | 038310 | 00407 |
| 28 | 961717 | 995913 | 965803 | 1034196 | 32 | 038282 | 00407 |
| 29 | 961744 | 995908 | 965836 | 1034163 | 31 | 038255 | 00408 |
| 30 | 961772 | 995902 | 965870 | 1034129 | 30 | 038227 | 00408 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 65 | | |

| | Sine. | Sine comple. | Tang | Tangent comple. | | com. æ of sine. | com. æ of tan cō |
|---|---|---|---|---|---|---|---|
| 0 | 961772 | 995902 | 965870 | 1034129 | 30 | 038227 | 004097 |
| 1 | 961800 | 995896 | 965903 | 1034096 | 29 | 038199 | 004103 |
| 2 | 961828 | 995890 | 965937 | 1034062 | 28 | 038171 | 004109 |
| 3 | 961855 | 995885 | 965970 | 1034029 | 27 | 038144 | 004115 |
| 4 | 961883 | 995879 | 966004 | 1033995 | 26 | 038116 | 004120 |
| 5 | 961911 | 995873 | 966037 | 1033962 | 25 | 038088 | 004126 |
| 6 | 961938 | 995867 | 966070 | 1033929 | 24 | 038061 | 004132 |
| 7 | 961966 | 995861 | 966104 | 1033895 | 23 | 038033 | 004138 |
| 8 | 961993 | 995856 | 966137 | 1033862 | 22 | 038006 | 004143 |
| 9 | 962021 | 995850 | 966171 | 1033828 | 21 | 037978 | 004149 |
| 10 | 962048 | 995844 | 966204 | 1033795 | 20 | 037951 | 004155 |
| 11 | 962076 | 995838 | 966237 | 1033762 | 19 | 037923 | 004161 |
| 12 | 962103 | 995832 | 966270 | 1033729 | 18 | 037896 | 004167 |
| 13 | 962131 | 995827 | 966304 | 1033695 | 17 | 037868 | 004172 |
| 14 | 962158 | 995821 | 966337 | 1033662 | 16 | 037841 | 004178 |
| 15 | 962186 | 995815 | 966370 | 1033629 | 15 | 037813 | 004184 |
| 16 | 962213 | 995809 | 966403 | 1033596 | 14 | 037786 | 004190 |
| 17 | 962240 | 995803 | 966437 | 1033562 | 13 | 037759 | 004196 |
| 18 | 962268 | 995797 | 966470 | 1033529 | 12 | 037731 | 004202 |
| 19 | 962295 | 995792 | 966503 | 1033496 | 11 | 037704 | 004207 |
| 20 | 962322 | 995786 | 966536 | 1033463 | 10 | 037677 | 004213 |
| 21 | 962350 | 995780 | 966569 | 1033430 | 9 | 037649 | 004219 |
| 22 | 962377 | 995774 | 966602 | 1033397 | 8 | 037622 | 004225 |
| 23 | 962404 | 995768 | 966635 | 1033364 | 7 | 037595 | 004231 |
| 24 | 962431 | 995762 | 966669 | 1033330 | 6 | 037568 | 004237 |
| 25 | 962459 | 995756 | 966702 | 1033297 | 5 | 037540 | 004243 |
| 26 | 962486 | 995751 | 966735 | 1033264 | 4 | 037513 | 004248 |
| 27 | 962513 | 995745 | 966768 | 1033231 | 3 | 037486 | 004254 |
| 28 | 962540 | 995739 | 966801 | 1033198 | 2 | 037459 | 004260 |
| 29 | 962567 | 995733 | 966834 | 1033165 | 1 | 037432 | 004266 |
| 30 | 962594 | 995727 | 966867 | 1033132 | 0 | 037405 | 004272 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| 25 | Sine. | Sine compl. | Tang. | Tangent compem. | | com. ar. of sine | com. ar of tang. |
|---|---|---|---|---|---|---|---|
| 0 | 962594 | 995727 | 966867 | 10331326 | 60 | 037405 | 004272 |
| 1 | 962621 | 995721 | 966900 | 10330995 | 59 | 037378 | 004278 |
| 2 | 962648 | 995715 | 966933 | 10330665 | 58 | 037351 | 004284 |
| 3 | 962676 | 995709 | 966966 | 10330333 | 57 | 037323 | 004290 |
| 4 | 962703 | 995703 | 966999 | 10330000 | 56 | 037296 | 004296 |
| 5 | 962730 | 995698 | 967031 | 10329685 | 55 | 037269 | 004301 |
| 6 | 962757 | 995692 | 967064 | 10329355 | 54 | 037242 | 004307 |
| 7 | 962783 | 995686 | 967097 | 10329025 | 53 | 037216 | 004313 |
| 8 | 962810 | 995680 | 967130 | 10328695 | 52 | 037189 | 004319 |
| 9 | 962837 | 995674 | 967163 | 10328365 | 51 | 037162 | 004325 |
| 10 | 962864 | 995668 | 967196 | 10328035 | 50 | 037135 | 004331 |
| 11 | 962891 | 995662 | 967229 | 10327705 | 49 | 037108 | 004337 |
| 12 | 962918 | 995656 | 967261 | 10327384 | 48 | 037081 | 004343 |
| 13 | 962945 | 995651 | 967294 | 10327054 | 47 | 037054 | 004349 |
| 14 | 962972 | 995644 | 967327 | 10326724 | 46 | 037027 | 004355 |
| 15 | 962998 | 995638 | 967360 | 10326394 | 45 | 037001 | 004361 |
| 16 | 963025 | 995632 | 967392 | 10326074 | 44 | 036974 | 004367 |
| 17 | 963052 | 995626 | 967425 | 10325744 | 43 | 036947 | 004373 |
| 18 | 963070 | 995620 | 967458 | 10325414 | 42 | 036920 | 004379 |
| 19 | 963105 | 995614 | 667491 | 10325084 | 41 | 036984 | 004385 |
| 20 | 963132 | 995608 | 967523 | 10324764 | 40 | 036867 | 004391 |
| 21 | 963159 | 995602 | 967556 | 10324434 | 39 | 036840 | 004397 |
| 22 | 963185 | 995596 | 967589 | 10324104 | 38 | 036814 | 004403 |
| 23 | 963212 | 995590 | 967621 | 10323784 | 37 | 036787 | 004409 |
| 24 | 963239 | 995584 | 967654 | 10323454 | 36 | 036760 | 004415 |
| 25 | 963265 | 995578 | 967686 | 10323134 | 35 | 036734 | 004421 |
| 26 | 963292 | 995572 | 967719 | 10322804 | 34 | 036707 | 004427 |
| 27 | 963318 | 995566 | 967752 | 10322474 | 33 | 036681 | 004433 |
| 28 | 963345 | 995560 | 967784 | 10322154 | 32 | 036654 | 004439 |
| 29 | 963371 | 995554 | 967817 | 10321824 | 31 | 036628 | 004445 |
| 30 | 963398 | 995548 | 967849 | 10321504 | 30 | 036601 | 004451 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 64 | | |

| 25 | Sine. | Sine comple. | Tang | Tangent comple. | | com. ar of sine. | com. ar of tan cō |
|---|---|---|---|---|---|---|---|
| 30 | 963398 | 994548 | 967849 | 1032150 | 30 | 036601 | 004451 |
| 31 | 963424 | 995542 | 967882 | 1032117 | 29 | 036575 | 004457 |
| 32 | 963451 | 995536 | 967914 | 1032085 | 28 | 036548 | 004463 |
| 33 | 993477 | 995530 | 967947 | 1032052 | 27 | 036522 | 004469 |
| 34 | 963504 | 995524 | 967979 | 1032020 | 26 | 036495 | 004475 |
| 35 | 963530 | 995518 | 968011 | 1031988 | 25 | 036469 | 004481 |
| 36 | 963556 | 995512 | 968044 | 1031955 | 24 | 036443 | 004487 |
| 37 | 963583 | 995506 | 968076 | 1031923 | 23 | 036416 | 004493 |
| 38 | 963609 | 995500 | 968109 | 1031890 | 22 | 036390 | 004499 |
| 39 | 963636 | 995494 | 968141 | 1031858 | 21 | 036363 | 004505 |
| 40 | 963662 | 995488 | 968173 | 1031826 | 20 | 036337 | 004511 |
| 41 | 963688 | 995482 | 968206 | 1031793 | 19 | 036311 | 004517 |
| 42 | 963714 | 995476 | 968238 | 1031761 | 18 | 036285 | 004523 |
| 43 | 963741 | 995470 | 968270 | 1031729 | 17 | 036258 | 004529 |
| 44 | 963767 | 995464 | 968303 | 1031696 | 16 | 036232 | 004535 |
| 45 | 963793 | 995457 | 968335 | 1031664 | 15 | 036206 | 004542 |
| 46 | 963819 | 995451 | 968467 | 1031632 | 14 | 036180 | 004548 |
| 47 | 963845 | 995445 | 968400 | 1031599 | 13 | 036154 | 004554 |
| 48 | 963871 | 995439 | 968432 | 1031567 | 12 | 036128 | 004560 |
| 49 | 963898 | 995433 | 968464 | 1031535 | 11 | 036101 | 004566 |
| 50 | 963824 | 995427 | 968496 | 1031503 | 10 | 036075 | 004572 |
| 51 | 963950 | 995421 | 968529 | 1031470 | 9 | 036049 | 004578 |
| 52 | 963976 | 995415 | 968561 | 1031438 | 8 | 036023 | 004584 |
| 53 | 964002 | 995409 | 968593 | 1031406 | 7 | 035997 | 004590 |
| 54 | 964028 | 995402 | 968625 | 1031374 | 6 | 035971 | 004597 |
| 55 | 964059 | 995396 | 968657 | 1031342 | 5 | 035945 | 004603 |
| 56 | 964080 | 995390 | 968689 | 1031310 | 4 | 035919 | 004609 |
| 57 | 964106 | 995384 | 968721 | 1031278 | 3 | 035893 | 004615 |
| 58 | 964132 | 995378 | 968754 | 1031245 | 2 | 035867 | 004621 |
| 59 | 964158 | 995372 | 968786 | 1031213 | 1 | 035841 | 004627 |
| 60 | 964184 | 995366 | 968818 | 1031181 | 0 | 035815 | 004633 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 64 | | |

| 26 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. d. of sine | com. d. of tan. ex |
|---|---|---|---|---|---|---|---|
| 0 | 964184 | 995366 | 968818 | 1031181 | 60 | 035815 | 004632 |
| 1 | 964210 | 995359 | 968850 | 1031149 | 59 | 035789 | 004640 |
| 2 | 964235 | 995353 | 968882 | 1031117 | 58 | 035764 | 004646 |
| 3 | 964261 | 995347 | 968914 | 1031085 | 57 | 035738 | 004652 |
| 4 | 964287 | 995341 | 968946 | 1031053 | 56 | 035712 | 004658 |
| 5 | 964313 | 995335 | 968978 | 1031021 | 55 | 035686 | 004664 |
| 6 | 964339 | 995328 | 969010 | 1030989 | 54 | 035660 | 004671 |
| 7 | 964365 | 995322 | 969042 | 1030957 | 53 | 035634 | 004677 |
| 8 | 964390 | 995316 | 969074 | 1030925 | 52 | 035609 | 004683 |
| 9 | 964416 | 995310 | 969106 | 1030893 | 51 | 035583 | 004689 |
| 10 | 964442 | 995304 | 969138 | 1030861 | 50 | 035557 | 004695 |
| 11 | 964467 | 995297 | 969170 | 1030830 | 49 | 035532 | 004702 |
| 12 | 964493 | 995291 | 969201 | 1030798 | 48 | 035505 | 004708 |
| 13 | 964519 | 995285 | 969233 | 1030766 | 47 | 035480 | 004714 |
| 14 | 964544 | 995279 | 969265 | 1030734 | 46 | 035455 | 004721 |
| 15 | 964570 | 995273 | 969297 | 1030702 | 45 | 035429 | 004726 |
| 16 | 964596 | 995266 | 969329 | 1030670 | 44 | 035403 | 004733 |
| 17 | 964621 | 995260 | 969361 | 1030638 | 43 | 035378 | 004739 |
| 18 | 964647 | 995254 | 969392 | 1030607 | 42 | 035352 | 004745 |
| 19 | 964672 | 995248 | 969424 | 1030575 | 41 | 035327 | 004751 |
| 20 | 964698 | 995241 | 969456 | 1030543 | 40 | 035301 | 004758 |
| 21 | 964723 | 995235 | 969488 | 1030511 | 39 | 035276 | 004764 |
| 22 | 964749 | 995229 | 969520 | 1030479 | 38 | 035250 | 004770 |
| 23 | 964774 | 995223 | 969551 | 1030448 | 37 | 035225 | 004776 |
| 24 | 964800 | 995216 | 969583 | 1030416 | 36 | 035199 | 004783 |
| 25 | 964825 | 995210 | 969615 | 1030384 | 35 | 035174 | 004789 |
| 26 | 964858 | 995204 | 969646 | 1030353 | 34 | 035148 | 004795 |
| 27 | 964876 | 995197 | 969678 | 1030321 | 33 | 035123 | 004802 |
| 28 | 964902 | 995191 | 969710 | 1030289 | 32 | 035097 | 004808 |
| 29 | 964927 | 995185 | 969741 | 1030258 | 31 | 035072 | 004814 |
| 30 | 964952 | 995179 | 969773 | 1030225 | 30 | 035047 | 004820 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 63 | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine | com. ar of fin. e8 |
|---|---|---|---|---|---|---|
| 964952 | 995179 | 969773 | 1030226 | 30 | 035047 | 004820 |
| 964978 | 995172 | 969805 | 1030194 | 29 | 035021 | 004827 |
| 965003 | 995166 | 969836 | 1030163 | 28 | 034996 | 004833 |
| 965028 | 995160 | 969868 | 1030131 | 27 | 034971 | 004839 |
| 965053 | 995153 | 969900 | 1030099 | 26 | 034946 | 004846 |
| 965079 | 995147 | 969931 | 1030068 | 25 | 034920 | 004852 |
| 965104 | 995141 | 969963 | 1030036 | 24 | 034895 | 004858 |
| 965129 | 995134 | 969994 | 1030005 | 23 | 034870 | 004865 |
| 965154 | 995128 | 970026 | 1029973 | 22 | 034845 | 004871 |
| 965180 | 995122 | 970057 | 1029942 | 21 | 034819 | 004877 |
| 965205 | 995115 | 970089 | 1029910 | 20 | 034794 | 004884 |
| 965230 | 995109 | 970120 | 1029879 | 19 | 034769 | 004890 |
| 965255 | 995103 | 970152 | 1029847 | 18 | 034744 | 004896 |
| 965280 | 995096 | 970183 | 1029816 | 17 | 034719 | 004903 |
| 965305 | 995090 | 970215 | 1029784 | 16 | 034694 | 004909 |
| 965330 | 995084 | 970246 | 1029752 | 15 | 034669 | 004915 |
| 965355 | 995077 | 970278 | 1029721 | 14 | 034644 | 004922 |
| 965380 | 995071 | 970309 | 1029690 | 13 | 034619 | 004928 |
| 965405 | 995065 | 970340 | 1029659 | 12 | 034594 | 004935 |
| 965430 | 995058 | 970372 | 1029627 | 11 | 034569 | 004941 |
| 965455 | 995052 | 970403 | 1029596 | 10 | 034544 | 004947 |
| 965480 | 995045 | 970434 | 1029565 | 9 | 034519 | 004954 |
| 965505 | 995039 | 970466 | 1029533 | 8 | 034494 | 004960 |
| 965530 | 995032 | 970497 | 1029502 | 7 | 034469 | 004966 |
| 965555 | 995026 | 970528 | 1029471 | 6 | 034444 | 004973 |
| 965580 | 995020 | 970560 | 1029439 | 5 | 034419 | 004979 |
| 965605 | 995013 | 970591 | 1029408 | 4 | 034394 | 004986 |
| 965630 | 995007 | 970622 | 1029377 | 3 | 034369 | 004992 |
| 965655 | 995000 | 970654 | 1029345 | 2 | 034344 | 004999 |
| 965679 | 994994 | 970685 | 1029314 | 1 | 034320 | 005005 |
| 965704 | 994988 | 970716 | 1029283 | 0 | 034295 | 005011 |
| Sine compl. | Sine. | Tangent. complem | Tang. | 63 | | |

| 27 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. of sine. | com. of |
|---|---|---|---|---|---|---|---|
| 0 | 965704 | 994988 | 970716 | 1029283 | 60 | 034295 | 00501 |
| 1 | 965729 | 994981 | 970747 | 1029252 | 59 | 034270 | 00501 |
| 2 | 965754 | 994975 | 970779 | 1029220 | 58 | 034245 | 00502 |
| 3 | 965778 | 994968 | 970810 | 1029189 | 57 | 034221 | 00503 |
| 4 | 965803 | 994962 | 970841 | 1029158 | 56 | 034196 | 00503 |
| 5 | 965828 | 994955 | 970872 | 1029127 | 55 | 034171 | 00504 |
| 6 | 965453 | 994949 | 970903 | 1029096 | 54 | 034146 | 00505 |
| 7 | 965877 | 994942 | 970934 | 1029065 | 53 | 034122 | 00505 |
| 8 | 965902 | 994936 | 970966 | 1029033 | 52 | 034097 | 00506 |
| 9 | 965927 | 994929 | 970997 | 1029002 | 51 | 034072 | 00507 |
| 10 | 965951 | 994923 | 971028 | 1028971 | 50 | 034048 | 00507 |
| 11 | 965976 | 994917 | 971059 | 1018940 | 49 | 034023 | 00508 |
| 12 | 966000 | 994910 | 971090 | 1028909 | 48 | 033999 | 00509 |
| 13 | 966025 | 994904 | 971121 | 1028876 | 47 | 033974 | 00509 |
| 14 | 966050 | 994897 | 971152 | 1028847 | 46 | 033949 | 00510 |
| 15 | 966074 | 994891 | 971183 | 1028816 | 45 | 033925 | 00510 |
| 16 | 966099 | 994884 | 971214 | 1028785 | 44 | 033900 | 00511 |
| 17 | 966123 | 994877 | 971245 | 1028754 | 43 | 033876 | 00512 |
| 18 | 966148 | 994871 | 971276 | 1028723 | 42 | 033851 | 00512 |
| 19 | 966172 | 994864 | 971307 | 1028692 | 41 | 033827 | 00513 |
| 20 | 966197 | 994858 | 971338 | 1028661 | 40 | 033802 | 00514 |
| 21 | 966221 | 994851 | 971369 | 1028630 | 39 | 033778 | 00514 |
| 22 | 966245 | 994845 | 971400 | 1028591 | 38 | 033754 | 00515 |
| 23 | 966270 | 994838 | 971431 | 1028568 | 37 | 033729 | 00516 |
| 24 | 966294 | 994832 | 971462 | 1028537 | 36 | 033705 | 00516 |
| 25 | 966319 | 994825 | 971493 | 1028506 | 35 | 033681 | 00517 |
| 26 | 966343 | 994819 | 971524 | 0028475 | 34 | 033656 | 00518 |
| 27 | 966367 | 994812 | 971555 | 1028444 | 33 | 033632 | 00518 |
| 28 | 966391 | 994806 | 971585 | 1028414 | 32 | 033608 | 00519 |
| 29 | 966416 | 994799 | 971616 | 1028383 | 31 | 033583 | 00520 |
| 30 | 966440 | 994792 | 971647 | 1028352 | 30 | 033559 | 00520 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. of sine | com. of fin. |
|---|---|---|---|---|---|---|
| 966440 | 994792 | 971647 | 1028352 | 30 | 033559 | 005207 |
| 966464 | 994786 | 971678 | 1028321 | 29 | 033535 | 005213 |
| 966489 | 994779 | 971709 | 1028290 | 28 | 033510 | 005220 |
| 966513 | 994773 | 971740 | 1028259 | 27 | 033486 | 005226 |
| 966537 | 994766 | 971770 | 1028229 | 26 | 033463 | 005233 |
| 966561 | 994759 | 971801 | 1028198 | 25 | 033438 | 005240 |
| 966585 | 994753 | 971832 | 1028167 | 24 | 033414 | 005246 |
| 966610 | 994746 | 971863 | 1028136 | 23 | 033389 | 005253 |
| 966634 | 994740 | 971894 | 1028105 | 22 | 033365 | 005259 |
| 966658 | 994733 | 971924 | 1028075 | 21 | 033341 | 005266 |
| 966682 | 994726 | 971955 | 1028044 | 20 | 033317 | 005273 |
| 966706 | 994720 | 971986 | 1028913 | 19 | 033293 | 005279 |
| 966730 | 994713 | 972016 | 1027983 | 18 | 033269 | 005286 |
| 966754 | 994707 | 972047 | 1027952 | 17 | 033245 | 005293 |
| 966778 | 994700 | 972078 | 1027921 | 16 | 033221 | 005299 |
| 966802 | 994693 | 972108 | 1027891 | 15 | 033197 | 005306 |
| 966826 | 994687 | 972139 | 1027860 | 14 | 033173 | 005312 |
| 966850 | 994680 | 972170 | 1027829 | 13 | 033149 | 005319 |
| 966874 | 994673 | 972200 | 1027799 | 12 | 033125 | 005326 |
| 966898 | 994667 | 972231 | 1027768 | 11 | 033101 | 005332 |
| 966822 | 994660 | 972262 | 1027737 | 10 | 033077 | 005339 |
| 966946 | 994653 | 972292 | 1027707 | 9 | 033053 | 005346 |
| 966970 | 994647 | 972323 | 1027676 | 8 | 033029 | 005352 |
| 966994 | 994640 | 972353 | 1027646 | 7 | 033005 | 005359 |
| 967018 | 994633 | 972384 | 1027615 | 6 | 032981 | 005366 |
| 967041 | 994627 | 972414 | 1027585 | 5 | 032958 | 005372 |
| 967067 | 994620 | 972445 | 1027554 | 4 | 032934 | 005379 |
| 967089 | 994613 | 972475 | 1027524 | 3 | 032910 | 005386 |
| 967113 | 994606 | 972506 | 1027493 | 2 | 032886 | 005393 |
| 967137 | 994600 | 972536 | 1027463 | 1 | 032862 | 005399 |
| 967160 | 994593 | 972567 | 1027432 | 0 | 032839 | 005406 |
| Sine compl. | Sine. | Tangent complem. | Tang. | | | 68 |

| 38 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of sine. | com. ar of tan. ch. | Sine. |
|---|---|---|---|---|---|---|---|---|
| 0 | 967160 | 994593 | 972567 | 1027432 | 60 | 032839 | 005406 | 67866 |
| 1 | 967184 | 994586 | 972597 | 1027402 | 59 | 032815 | 005413 | 67889 |
| 2 | 967208 | 994580 | 972628 | 1027371 | 58 | 032791 | 005419 | 67912 |
| 3 | 967232 | 994573 | 972658 | 1027341 | 57 | 032767 | 005426 | 67936 |
| 4 | 967255 | 994566 | 972689 | 1027310 | 56 | 032744 | 005433 | 67959 |
| 5 | 967279 | 994559 | 972719 | 1027280 | 55 | 032720 | 005440 | 67983 |
| 6 | 967303 | 994553 | 972750 | 1027249 | 54 | 032696 | 005446 | 68006 |
| 7 | 967326 | 994546 | 972780 | 1027219 | 53 | 032673 | 005453 | 68029 |
| 8 | 967350 | 994539 | 972810 | 1027189 | 52 | 032649 | 005460 | 68053 |
| 9 | 967374 | 994532 | 972841 | 1027158 | 51 | 032625 | 005467 | 68076 |
| 10 | 967397 | 994526 | 972871 | 1027128 | 50 | 032602 | 005473 | 68099 |
| 11 | 967421 | 994519 | 972901 | 1027098 | 49 | 032578 | 005480 | 68123 |
| 12 | 967444 | 994512 | 972932 | 1027067 | 48 | 032555 | 005487 | 68146 |
| 13 | 967468 | 994505 | 972962 | 1027037 | 47 | 032531 | 005494 | 68169 |
| 14 | 967491 | 994498 | 972992 | 1027007 | 46 | 032508 | 005501 | 68193 |
| 15 | 967515 | 994492 | 973023 | 1026976 | 45 | 032484 | 005507 | 68216 |
| 16 | 967538 | 994485 | 973053 | 1026946 | 44 | 032461 | 005514 | 68239 |
| 17 | 967562 | 994478 | 973083 | 1026916 | 43 | 032437 | 005521 | 68263 |
| 18 | 967585 | 994471 | 973114 | 1026885 | 42 | 032414 | 005528 | 68286 |
| 19 | 967609 | 994465 | 973144 | 1026855 | 41 | 032390 | 005535 | 68309 |
| 20 | 967632 | 994458 | 973174 | 1026825 | 40 | 032367 | 005541 | 68333 |
| 21 | 967656 | 994451 | 973204 | 1026795 | 39 | 032343 | 005548 | 68356 |
| 22 | 967679 | 994444 | 973235 | 1026764 | 38 | 032320 | 005555 | 68379 |
| 23 | 967703 | 994437 | 973265 | 1026734 | 37 | 032296 | 005562 | 68403 |
| 24 | 967726 | 994430 | 973295 | 1026704 | 36 | 032273 | 005569 | 68426 |
| 25 | 967749 | 994424 | 973325 | 1026674 | 35 | 032250 | 005575 | 68449 |
| 26 | 967773 | 994417 | 973355 | 1026644 | 34 | 032226 | 005582 | 68473 |
| 27 | 967796 | 994410 | 973386 | 1026613 | 33 | 032203 | 005589 | 68496 |
| 28 | 967819 | 994403 | 973416 | 1026583 | 32 | 032180 | 005596 | 68519 |
| 29 | 967843 | 994396 | 973446 | 1026553 | 31 | 032156 | 005603 | 68543 |
| 30 | 967866 | 994389 | 973476 | 1026523 | 30 | 032133 | 005609 | 68566 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | | | | 61 |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine | com. ar of fin. co- |
|---|---|---|---|---|---|---|
| 67866 | 994389 | 973476 | 1026523 | 30 | 032133 | 005610 |
| 67889 | 994382 | 973506 | 1026493 | 29 | 032110 | 005617 |
| 67912 | 994376 | 973536 | 1026463 | 28 | 032087 | 005623 |
| 67936 | 994369 | 973566 | 1026433 | 27 | 032063 | 005630 |
| 67959 | 994362 | 973596 | 1026403 | 26 | 032040 | 005637 |
| 67982 | 994355 | 973626 | 1026373 | 25 | 032017 | 005644 |
| 68005 | 994348 | 973656 | 1026343 | 24 | 031994 | 005651 |
| 68028 | 994341 | 973687 | 1026312 | 23 | 031971 | 005658 |
| 68051 | 994334 | 973717 | 1026282 | 22 | 031948 | 005665 |
| 68075 | 994327 | 973747 | 1026252 | 21 | 031924 | 005672 |
| 68098 | 994321 | 973777 | 1026222 | 20 | 031901 | 005678 |
| 68121 | 994314 | 973807 | 1026192 | 19 | 031878 | 005685 |
| 68144 | 994307 | 973837 | 1026162 | 18 | 031855 | 005692 |
| 68167 | 994300 | 973867 | 1026132 | 17 | 031832 | 005699 |
| 68190 | 994293 | 973897 | 1026102 | 16 | 031886 | 005706 |
| 68213 | 994286 | 973927 | 1026072 | 15 | 031709 | 005713 |
| 68236 | 994279 | 973957 | 1026042 | 14 | 031763 | 005720 |
| 68259 | 994273 | 973986 | 1026013 | 13 | 031740 | 005727 |
| 68282 | 994265 | 974016 | 1025983 | 12 | 031717 | 005734 |
| 68305 | 994258 | 974046 | 1025953 | 11 | 031694 | 005741 |
| 68328 | 994251 | 974076 | 1025923 | 10 | 031671 | 005748 |
| 68351 | 994244 | 974106 | 1025893 | 9 | 031648 | 005755 |
| 68374 | 994237 | 974136 | 1025863 | 8 | 031625 | 005762 |
| 68397 | 994230 | 974166 | 1025833 | 7 | 031602 | 005769 |
| 68420 | 994223 | 974196 | 1025803 | 6 | 031579 | 005776 |
| 68442 | 994216 | 974226 | 1025773 | 5 | 031557 | 005783 |
| 68465 | 994209 | 974255 | 1025744 | 4 | 031534 | 005790 |
| 68488 | 994202 | 974285 | 1025714 | 3 | 031511 | 005797 |
| 68511 | 994195 | 974315 | 1025684 | 2 | 031488 | 005804 |
| 68534 | 994188 | 974345 | 1025654 | 1 | 031465 | 005811 |
| 68557 | 994181 | 974375 | 1025624 | 0 | 031442 | 005818 |
| Sine compl. | Sine. | Tangent complem. | Tang. | | 61 | |

| 29 | Sine. | Sine comple. | Tang. | Tangent comple. | | cota. or of sine | com. of |
|---|---|---|---|---|---|---|---|
| 0 | 968557 | 994181 | 974375 | 1025624 | 60 | 031442 | 00 |
| 1 | 968579 | 994174 | 974404 | 1025595 | 59 | 031420 | 00 |
| 2 | 968602 | 994167 | 974434 | 1025565 | 58 | 031397 | 00 |
| 3 | 968625 | 994160 | 974464 | 1025535 | 57 | 031374 | 00 |
| 4 | 968648 | 994153 | 974494 | 1025505 | 56 | 031351 | 00 |
| 5 | 968670 | 994146 | 974524 | 1025475 | 55 | 031329 | 00 |
| 6 | 968793 | 994139 | 974553 | 1025446 | 54 | 031306 | 00 |
| 7 | 968716 | 994132 | 974583 | 1025416 | 53 | 031283 | 00 |
| 8 | 968738 | 994125 | 974613 | 1025386 | 52 | 031261 | 00 |
| 9 | 968761 | 994118 | 974642 | 1025357 | 51 | 031238 | 00 |
| 10 | 968784 | 994111 | 974672 | 1025327 | 50 | 031215 | 00 |
| 11 | 968806 | 994104 | 974702 | 1025297 | 49 | 031193 | 00 |
| 12 | 968829 | 994097 | 974731 | 1025268 | 48 | 031170 | 00 |
| 13 | 968852 | 994090 | 974761 | 1025238 | 47 | 031147 | 00 |
| 14 | 968874 | 994083 | 974791 | 1025208 | 46 | 031125 | 00 |
| 15 | 968897 | 994076 | 974820 | 1025179 | 45 | 031102 | 00 |
| 16 | 968919 | 994069 | 974850 | 1025149 | 44 | 031080 | 00 |
| 17 | 968942 | 994062 | 974880 | 1025119 | 43 | 031057 | 00 |
| 18 | 968964 | 994055 | 974909 | 1025090 | 42 | 031035 | 00 |
| 19 | 968987 | 994048 | 974939 | 1025060 | 41 | 031012 | 00 |
| 20 | 969009 | 994040 | 974968 | 1025031 | 40 | 030990 | 00 |
| 21 | 969032 | 994033 | 974998 | 1025001 | 39 | 030967 | 00 |
| 22 | 969054 | 994026 | 975028 | 1024971 | 38 | 030945 | 00 |
| 23 | 969077 | 994019 | 975057 | 1024942 | 37 | 030922 | 00 |
| 24 | 969099 | 994012 | 975087 | 1024912 | 36 | 030900 | 00 |
| 25 | 969122 | 994005 | 975116 | 1024883 | 35 | 030877 | 00 |
| 26 | 969144 | 993998 | 975146 | 1024853 | 34 | 030855 | 00 |
| 27 | 969166 | 993991 | 975175 | 1024824 | 33 | 030833 | 00 |
| 28 | 969189 | 993983 | 975205 | 1024794 | 32 | 030810 | 00 |
| 29 | 969211 | 993976 | 975234 | 1024765 | 31 | 030788 | 00 |
| 30 | 969233 | 993969 | 975264 | 1024735 | 30 | 030766 | 00 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 60 | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine | com. ar of fin. cs |
|---|---|---|---|---|---|---|
| 69233 | 993969 | 975264 | 1024735 | 30 | 030766 | 006030 |
| 69256 | 993962 | 925293 | 1024706 | 29 | 030743 | 006037 |
| 69278 | 993955 | 925323 | 1024676 | 28 | 030721 | 006044 |
| 69300 | 993948 | 925352 | 1024647 | 27 | 030699 | 006051 |
| 69323 | 993941 | 925382 | 1024617 | 26 | 030676 | 006058 |
| 69345 | 993933 | 925411 | 1024588 | 25 | 030654 | 006066 |
| 69367 | 993926 | 975440 | 1024559 | 24 | 030632 | 006073 |
| 69389 | 993919 | 975470 | 1024529 | 23 | 030610 | 006080 |
| 69412 | 993912 | 975499 | 1024500 | 22 | 030587 | 006087 |
| 69434 | 993905 | 975529 | 1024470 | 21 | 030565 | 006094 |
| 69456 | 993897 | 975558 | 1024441 | 20 | 030543 | 006102 |
| 69478 | 993890 | 975587 | 1024412 | 19 | 030521 | 006109 |
| 69500 | 993883 | 975617 | 1024382 | 18 | 030499 | 006116 |
| 69522 | 993876 | 975646 | 1024353 | 17 | 030477 | 006123 |
| 69545 | 993869 | 975675 | 1024324 | 16 | 030454 | 006130 |
| 69567 | 993861 | 975705 | 1024294 | 15 | 030432 | 006138 |
| 69589 | 993854 | 975734 | 1024265 | 14 | 030410 | 006145 |
| 69611 | 993847 | 975763 | 1024236 | 13 | 030388 | 006152 |
| 69633 | 993840 | 975793 | 1024206 | 12 | 030366 | 006159 |
| 69655 | 993833 | 975822 | 1024177 | 11 | 030344 | 006167 |
| 69677 | 993825 | 975851 | 1024148 | 10 | 030322 | 006174 |
| 69699 | 993818 | 975880 | 1024119 | 9 | 030300 | 006181 |
| 69721 | 993811 | 975910 | 1024089 | 8 | 030278 | 006188 |
| 69743 | 993804 | 975939 | 1024060 | 7 | 030256 | 006196 |
| 69765 | 993796 | 975968 | 1024031 | 6 | 030234 | 006203 |
| 69787 | 993789 | 975997 | 1024002 | 5 | 030212 | 006210 |
| 69809 | 993782 | 976037 | 1023972 | 4 | 030190 | 006217 |
| 69831 | 993774 | 976056 | 1023943 | 3 | 030168 | 006225 |
| 69853 | 993767 | 976085 | 1023914 | 2 | 030146 | 006232 |
| 69875 | 993760 | 976114 | 1023885 | 1 | 030124 | 006239 |
| 69897 | 993753 | 976143 | 1023856 | 0 | 030103 | 006246 |
| Sine compl. | Sine. | Tangent. complent | Tang. | 60 | | |

| 30 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. of fine | com. of |
|---|---|---|---|---|---|---|---|
| 0 | 969897 | 993753 | 976143 | 1023856 | 60 | 030103 | 00 |
| 1 | 969918 | 993745 | 976173 | 1023826 | 59 | 030081 | 00 |
| 2 | 969940 | 993738 | 976202 | 1023797 | 58 | 030059 | 00 |
| 3 | 969962 | 993731 | 976231 | 1023768 | 57 | 030037 | 00 |
| 4 | 969984 | 993723 | 976260 | 1023739 | 56 | 030015 | 00 |
| 5 | 970006 | 993716 | 976289 | 1023710 | 55 | 029993 | 00 |
| 6 | 970028 | 993709 | 976318 | 1023681 | 54 | 029971 | 00 |
| 7 | 970049 | 993701 | 976347 | 1023652 | 53 | 029950 | 00 |
| 8 | 970071 | 993694 | 976377 | 1023623 | 52 | 029928 | 00 |
| 9 | 970093 | 993687 | 976406 | 1023593 | 51 | 029906 | 00 |
| 10 | 970115 | 993679 | 976435 | 1023564 | 50 | 029884 | 00 |
| 11 | 970136 | 993672 | 976464 | 1023535 | 49 | 029863 | 00 |
| 12 | 970158 | 993665 | 976493 | 1023506 | 48 | 029841 | 00 |
| 13 | 970180 | 993657 | 976522 | 1023477 | 47 | 029819 | 00 |
| 14 | 970201 | 993650 | 976551 | 1023448 | 46 | 029798 | 00 |
| 15 | 970223 | 993643 | 976580 | 1023419 | 45 | 029776 | 00 |
| 16 | 970245 | 993635 | 976600 | 1023390 | 44 | 029754 | 00 |
| 17 | 970266 | 993628 | 976638 | 1023361 | 43 | 029733 | 00 |
| 18 | 970288 | 993620 | 976667 | 1023332 | 42 | 029711 | 00 |
| 19 | 970310 | 993613 | 976696 | 1023303 | 41 | 029689 | 00 |
| 20 | 970331 | 993606 | 976725 | 1023274 | 40 | 029668 | 00 |
| 21 | 970353 | 993598 | 976754 | 1023245 | 39 | 029646 | 00 |
| 22 | 970374 | 993591 | 976783 | 1023216 | 38 | 029625 | 00 |
| 23 | 970396 | 993584 | 976812 | 1023187 | 37 | 029603 | 00 |
| 24 | 970417 | 993576 | 976841 | 1023158 | 36 | 029582 | 00 |
| 25 | 970439 | 993569 | 976870 | 1023120 | 35 | 029560 | 00 |
| 26 | 970460 | 993561 | 976899 | 1023100 | 34 | 029539 | 00 |
| 27 | 970482 | 993554 | 976928 | 1023072 | 33 | 029517 | 00 |
| 28 | 970503 | 993546 | 976957 | 1023042 | 32 | 029496 | 00 |
| 29 | 970525 | 993539 | 976985 | 1023014 | 31 | 029474 | 00 |
| 30 | 970546 | 993532 | 977014 | 1022985 | 30 | 029453 | 00 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 59 | | Sine compl |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. of fine. | com. of tang. |
|---|---|---|---|---|---|---|
| 970546 | 993532 | 977014 | 1022985 | 30 | 029453 | 006467 |
| 970568 | 993524 | 977043 | 0212956 | 29 | 029431 | 006475 |
| 970589 | 993517 | 977072 | 0212927 | 28 | 029410 | 006482 |
| 970611 | 993509 | 977101 | 1022898 | 27 | 029388 | 006490 |
| 970632 | 993502 | 977130 | 1022869 | 26 | 029367 | 006497 |
| 970653 | 993494 | 977159 | 1022840 | 25 | 029346 | 006505 |
| 970675 | 993487 | 977188 | 1022811 | 24 | 029324 | 006512 |
| 970696 | 993479 | 977216 | 1022783 | 23 | 029303 | 006520 |
| 970718 | 993472 | 977245 | 1022754 | 22 | 029281 | 006527 |
| 970739 | 993464 | 977274 | 1022725 | 21 | 029260 | 006535 |
| 970760 | 993457 | 977303 | 1022696 | 20 | 029239 | 006542 |
| 970781 | 993449 | 977332 | 1022667 | 19 | 029218 | 006550 |
| 970803 | 993442 | 977360 | 1022639 | 18 | 029196 | 006557 |
| 970824 | 993434 | 977389 | 1022610 | 17 | 029175 | 006565 |
| 970845 | 993427 | 977418 | 1022581 | 16 | 029154 | 006572 |
| 970866 | 993419 | 977447 | 1022552 | 15 | 029133 | 006580 |
| 970888 | 993412 | 977475 | 1022524 | 14 | 029111 | 006587 |
| 970909 | 993404 | 977504 | 1022495 | 13 | 029090 | 006595 |
| 970930 | 993397 | 977533 | 1022466 | 12 | 029069 | 006602 |
| 970951 | 993389 | 977562 | 1022437 | 11 | 029048 | 006610 |
| 970972 | 993382 | 977590 | 1022409 | 10 | 029027 | 006617 |
| 970994 | 993374 | 977619 | 1022380 | 9 | 029005 | 006625 |
| 971015 | 993367 | 977648 | 1022351 | 8 | 028984 | 006632 |
| 971036 | 993359 | 977676 | 1022323 | 7 | 028963 | 006640 |
| 971057 | 993352 | 977705 | 1022294 | 6 | 028942 | 006647 |
| 971078 | 993344 | 977734 | 1022265 | 5 | 028921 | 006655 |
| 971099 | 993336 | 977762 | 1022237 | 4 | 028900 | 006663 |
| 971120 | 993329 | 977791 | 1022208 | 3 | 028879 | 006670 |
| 971141 | 993321 | 977820 | 1022179 | 2 | 028858 | 006678 |
| 971162 | 993314 | 977848 | 1022151 | 1 | 028837 | 006685 |
| 971183 | 993306 | 977877 | 1022122 | 0 | 028816 | 006693 |
| Sine compl. | Sine. | Tangent complem. | Tang. | | 59 | |

| 31 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. of Sine | com. of |
|---|---|---|---|---|---|---|---|
| 0 | 971183 | 993306 | 977877 | 1022122 | 60 | 028816 | 006 |
| 1 | 971204 | 993298 | 977905 | 1022094 | 59 | 028795 | 006 |
| 2 | 971225 | 993291 | 977934 | 1022065 | 58 | 028774 | 006 |
| 3 | 971246 | 993283 | 977963 | 1022036 | 57 | 028753 | 006 |
| 4 | 971267 | 993276 | 977991 | 1022008 | 56 | 028732 | 006 |
| 5 | 971288 | 993268 | 978020 | 1021979 | 55 | 028711 | 006 |
| 6 | 971309 | 993260 | 978048 | 1021951 | 54 | 028690 | 006 |
| 7 | 971330 | 993253 | 978077 | 1021922 | 53 | 028669 | 006 |
| 8 | 971351 | 993245 | 978106 | 1021893 | 52 | 028648 | 006 |
| 9 | 971372 | 993238 | 978134 | 1021865 | 51 | 028627 | 006 |
| 10 | 971393 | 993230 | 978163 | 1021836 | 50 | 028606 | 006 |
| 11 | 971414 | 993222 | 978191 | 1021808 | 49 | 028585 | 006 |
| 12 | 971435 | 993215 | 978220 | 1021779 | 48 | 028564 | 006 |
| 13 | 971456 | 993207 | 978248 | 1021751 | 47 | 028543 | 006 |
| 14 | 971476 | 993199 | 978277 | 1021722 | 46 | 028523 | 006 |
| 15 | 971497 | 993192 | 978305 | 1021694 | 45 | 028502 | 006 |
| 16 | 971518 | 993184 | 978334 | 1021665 | 44 | 028481 | 006 |
| 17 | 971539 | 993176 | 978362 | 1021637 | 43 | 028460 | 006 |
| 18 | 971560 | 993169 | 978391 | 1021608 | 42 | 028439 | 006 |
| 19 | 971580 | 993161 | 978419 | 1021580 | 41 | 028419 | 006 |
| 20 | 971601 | 993153 | 978447 | 1021552 | 40 | 028398 | 006 |
| 21 | 971622 | 993146 | 978476 | 1021523 | 39 | 028377 | 006 |
| 22 | 971643 | 993138 | 978504 | 1021495 | 38 | 028356 | 006 |
| 23 | 971663 | 993130 | 978533 | 1021466 | 37 | 028336 | 006 |
| 24 | 971684 | 993122 | 978561 | 1021438 | 36 | 028315 | 006 |
| 25 | 971705 | 993115 | 978590 | 1021409 | 35 | 028294 | 006 |
| 26 | 971725 | 993107 | 978618 | 1021381 | 34 | 028274 | 006 |
| 27 | 971746 | 993099 | 978646 | 1021353 | 33 | 028253 | 006 |
| 28 | 971767 | 993092 | 978675 | 1021324 | 32 | 028232 | 006 |
| 29 | 971787 | 993084 | 978703 | 1021296 | 31 | 028212 | 006 |
| 30 | 971808 | 993076 | 978731 | 1021268 | 30 | 028191 | 006 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 58 | | |

| | Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of sine | com. ar of sin. cor |
|---|---|---|---|---|---|---|---|
| 30 | 961808 | 993076 | 978731 | 1021268 | 30 | 028191 | 006923 |
| 31 | 961829 | 993068 | 978760 | 1021239 | 29 | 028170 | 006931 |
| 32 | 961849 | 993061 | 978788 | 1021211 | 28 | 028150 | 006938 |
| 33 | 961870 | 993053 | 978816 | 1021183 | 27 | 028129 | 006946 |
| 34 | 961890 | 993045 | 978845 | 1021154 | 26 | 028109 | 006954 |
| 35 | 961911 | 993037 | 978873 | 1021126 | 25 | 028088 | 006962 |
| 36 | 961931 | 993030 | 978901 | 1021098 | 24 | 028068 | 006969 |
| 37 | 961952 | 993022 | 978930 | 1021069 | 23 | 028047 | 006977 |
| 38 | 961973 | 993014 | 978958 | 1021041 | 22 | 028027 | 006985 |
| 39 | 961993 | 993006 | 978986 | 1021013 | 21 | 028006 | 006993 |
| 40 | 962013 | 992998 | 979015 | 1020984 | 20 | 027986 | 007001 |
| 41 | 962034 | 992991 | 979043 | 1020956 | 19 | 027965 | 007008 |
| 42 | 962054 | 992983 | 979071 | 1020928 | 18 | 027945 | 007016 |
| 43 | 962075 | 992975 | 979099 | 1020900 | 17 | 027924 | 007024 |
| 44 | 962095 | 992967 | 979128 | 1020871 | 16 | 027904 | 007032 |
| 45 | 962116 | 992959 | 979156 | 1020843 | 15 | 027883 | 007040 |
| 46 | 962136 | 992952 | 979184 | 1020815 | 14 | 027863 | 007047 |
| 47 | 962157 | 992944 | 979212 | 1020787 | 13 | 027842 | 007055 |
| 48 | 962177 | 992936 | 979241 | 1020758 | 12 | 027822 | 007063 |
| 49 | 962197 | 992928 | 979269 | 1020730 | 11 | 027802 | 007071 |
| 50 | 962218 | 992920 | 979297 | 1020702 | 10 | 027781 | 007079 |
| 51 | 962238 | 992912 | 979325 | 1020674 | 9 | 027761 | 007087 |
| 52 | 962258 | 992905 | 979353 | 1020646 | 8 | 027741 | 007094 |
| 53 | 962279 | 992897 | 979381 | 1020618 | 7 | 027720 | 007102 |
| 54 | 962299 | 992889 | 979410 | 1020589 | 6 | 027700 | 007110 |
| 55 | 962319 | 992881 | 979438 | 1020561 | 5 | 027680 | 007118 |
| 56 | 962340 | 992873 | 979466 | 1020533 | 4 | 027660 | 007126 |
| 57 | 962360 | 992865 | 97949 | 1020505 | 3 | 027639 | 007124 |
| 58 | 962380 | 992857 | 979522 | 1020477 | 2 | 027619 | 007142 |
| 59 | 962400 | 992849 | 979550 | 1020449 | 1 | 027599 | 007150 |
| 60 | 962420 | 992842 | 979578 | 1020421 | 0 | 027579 | 007157 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 58 | | |

| 32 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. s of sine | com. s of tin. ck |
|---|---|---|---|---|---|---|---|
| 0 | 972420 | 992842 | 979578 | 1020421 | 60 | 027579 | 007157 |
| 1 | 972441 | 992834 | 979607 | 1020392 | 59 | 027558 | 007165 |
| 2 | 972461 | 992826 | 979635 | 1020364 | 58 | 027538 | 007173 |
| 3 | 972481 | 992818 | 979663 | 1020336 | 57 | 027518 | 007181 |
| 4 | 972501 | 992810 | 979691 | 1020308 | 56 | 027498 | 007189 |
| 5 | 972521 | 992801 | 979719 | 1020280 | 55 | 027478 | 007197 |
| 6 | 972542 | 992794 | 979747 | 1020252 | 54 | 027457 | 007205 |
| 7 | 972562 | 992786 | 979775 | 1020224 | 53 | 027437 | 007213 |
| 8 | 972582 | 992778 | 979803 | 1020196 | 52 | 027417 | 00 221 |
| 9 | 972602 | 992770 | 979831 | 1020168 | 51 | 027397 | 007229 |
| 10 | 972622 | 992762 | 97985 | 1020140 | 50 | 027377 | 007237 |
| 11 | 972642 | 992754 | 979887 | 1020111 | 49 | 027357 | 007245 |
| 12 | 972662 | 992746 | 979915 | 1020084 | 48 | 027337 | 007253 |
| 13 | 972682 | 992738 | 979943 | 1020056 | 47 | 027317 | 007261 |
| 14 | 972702 | 992731 | 979971 | 1020028 | 46 | 027297 | 007268 |
| 15 | 972722 | 992723 | 979999 | 1020000 | 45 | 027277 | 007276 |
| 16 | 972742 | 992715 | 980027 | 1019972 | 44 | 027257 | 007284 |
| 17 | 972762 | 992707 | 980055 | 1019944 | 43 | 027237 | 007292 |
| 18 | 972782 | 992699 | 980083 | 1019916 | 42 | 027217 | 007300 |
| 19 | 972802 | 992691 | 980111 | 1019888 | 41 | 027197 | 007308 |
| 20 | 972822 | 992683 | 980139 | 1019860 | 40 | 027177 | 007316 |
| 21 | 972842 | 992675 | 980167 | 1019832 | 39 | 027157 | 007324 |
| 22 | 972862 | 992667 | 980195 | 1019804 | 38 | 027137 | 007332 |
| 23 | 972882 | 992659 | 980223 | 1019776 | 37 | 027117 | 007340 |
| 24 | 972902 | 992651 | 980251 | 1019748 | 36 | 027097 | 007348 |
| 25 | 972922 | 992643 | 980279 | 1019720 | 35 | 027077 | 007356 |
| 26 | 972942 | 992635 | 980307 | 1019692 | 34 | 027057 | 007364 |
| 27 | 972962 | 992627 | 980335 | 101966. | 33 | 027037 | 007372 |
| 28 | 972981 | 992619 | 980362 | 1019637 | 32 | 027018 | 007380 |
| 29 | 973001 | 992610 | 980390 | 1019609 | 31 | 026998 | 007389 |
| 30 | 973021 | 992602 | 980418 | 1019581 | 30 | 026978 | 007397 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 57 | | |

| 32 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of fine | com. ar of fin. ex. |
|---|---|---|---|---|---|---|---|
| 30 | 973021 | 992602 | 980418 | 1019581 | 30 | 026978 | 007397 |
| 31 | 973041 | 992594 | 980446 | 1019553 | 29 | 026958 | 007405 |
| 32 | 973061 | 992586 | 980474 | 1019525 | 28 | 026938 | 007413 |
| 33 | 973081 | 992578 | 980502 | 1019497 | 27 | 026918 | 007421 |
| 34 | 973100 | 992570 | 980530 | 1019469 | 26 | 026899 | 007429 |
| 35 | 973120 | 992562 | 980558 | 1019441 | 25 | 026879 | 007437 |
| 36 | 973140 | 992554 | 980585 | 1019414 | 24 | 026859 | 007445 |
| 37 | 973160 | 992546 | 980613 | 1019385 | 23 | 026839 | 007453 |
| 38 | 973179 | 992538 | 980641 | 1019358 | 22 | 026820 | 007461 |
| 39 | 973199 | 992530 | 980669 | 1019330 | 21 | 026800 | 007469 |
| 40 | 973219 | 992522 | 980697 | 1019303 | 20 | 026780 | 007477 |
| 41 | 973239 | 992514 | 980724 | 1019275 | 19 | 026760 | 007485 |
| 42 | 973258 | 992505 | 980752 | 1019247 | 18 | 026741 | 007494 |
| 43 | 973278 | 992497 | 980780 | 1019219 | 17 | 026721 | 007502 |
| 44 | 973298 | 992489 | 980808 | 1019191 | 16 | 026702 | 007510 |
| 45 | 973317 | 992481 | 980836 | 1011163 | 15 | 026682 | 007518 |
| 46 | 973337 | 992473 | 980863 | 1019136 | 14 | 026662 | 007526 |
| 47 | 973356 | 992465 | 980891 | 1019108 | 13 | 026643 | 007534 |
| 48 | 973376 | 992457 | 980919 | 1019080 | 12 | 026623 | 007542 |
| 49 | 973396 | 992449 | 980947 | 1019052 | 11 | 026603 | 007550 |
| 50 | 973415 | 992440 | 980974 | 1019025 | 10 | 026584 | 007559 |
| 51 | 973435 | 992432 | 981002 | 10 8997 | 9 | 026564 | 007567 |
| 52 | 973454 | 992424 | 981030 | 1018969 | 8 | 026545 | 007575 |
| 53 | 973474 | 992416 | 981057 | 1018942 | 7 | 025525 | 007583 |
| 54 | 973493 | 992408 | 981085 | 1018914 | 6 | 026506 | 007591 |
| 55 | 973513 | 992400 | 981113 | 1018886 | 5 | 026486 | 007599 |
| 56 | 973532 | 992391 | 981141 | 1018858 | 4 | 026467 | 007608 |
| 57 | 973552 | 992383 | 981168 | 1018831 | 3 | 026447 | 007616 |
| 58 | 973571 | 992375 | 981196 | 1018803 | 2 | 026428 | 007624 |
| 59 | 973591 | 992376 | 981224 | 1018775 | 1 | 026408 | 007632 |
| 60 | 973610 | 992359 | 981251 | 1018748 | 0 | 026389 | 007640 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | | | 57 |

| 33 | Sine. | Sine compl. | Tang. | Tangent complem. | | cont. ar of sine. | cont. ar of tan. cd. |
|---|---|---|---|---|---|---|---|
| 0 | 973610 | 992359 | 981251 | 1018748 | 60 | 026389 | 007640 |
| 1 | 973630 | 992350 | 981279 | 1018720 | 59 | 026369 | 007649 |
| 2 | 973649 | 992342 | 981307 | 1018692 | 58 | 026350 | 007657 |
| 3 | 973669 | 992334 | 981334 | 1018665 | 57 | 026330 | 007665 |
| 4 | 973688 | 992326 | 981362 | 1018637 | 56 | 026311 | 007673 |
| 5 | 973707 | 992318 | 981389 | 1018610 | 55 | 026292 | 007681 |
| 6 | 973727 | 992309 | 981417 | 1018582 | 54 | 026272 | 007690 |
| 7 | 973746 | 992301 | 981445 | 1018554 | 53 | 026253 | 007698 |
| 8 | 973766 | 992293 | 981472 | 1018527 | 52 | 026233 | 007706 |
| 9 | 973785 | 992285 | 981500 | 1018499 | 51 | 026214 | 007714 |
| 10 | 973804 | 992276 | 981527 | 1018472 | 50 | 026195 | 007723 |
| 11 | 973824 | 992268 | 981555 | 1018444 | 49 | 026175 | 007731 |
| 12 | 973843 | 992260 | 981583 | 1018416 | 48 | 026156 | 007739 |
| 13 | 973862 | 992252 | 981610 | 1018389 | 47 | 026137 | 007747 |
| 14 | 973882 | 992243 | 981638 | 1018351 | 46 | 026117 | 007756 |
| 15 | 973901 | 992235 | 981665 | 1018334 | 45 | 026098 | 007764 |
| 16 | 973920 | 992227 | 981693 | 1018206 | 44 | 026079 | 007772 |
| 17 | 973939 | 992218 | 981720 | 1018279 | 43 | 026060 | 007781 |
| 18 | 973959 | 992210 | 981748 | 1018251 | 42 | 026040 | 007789 |
| 19 | 973978 | 992202 | 981775 | 1018224 | 41 | 026021 | 007797 |
| 20 | 973997 | 992194 | 981803 | 1018196 | 40 | 026002 | 007805 |
| 21 | 974016 | 992185 | 981830 | 101816 9 | 39 | 025983 | 007814 |
| 22 | 974035 | 992177 | 981858 | 1018141 | 38 | 025964 | 007822 |
| 23 | 974055 | 992169 | 981885 | 1018114 | 37 | 025944 | 007830 |
| 24 | 974074 | 992160 | 981913 | 1018086 | 36 | 025925 | 007839 |
| 25 | 974093 | 992152 | 981940 | 1018059 | 35 | 025906 | 007847 |
| 26 | 974112 | 992144 | 981968 | 0018031 | 34 | 025887 | 007855 |
| 27 | 974131 | 992135 | 981995 | 1018004 | 33 | 025868 | 007864 |
| 28 | 974150 | 992127 | 982023 | 1017976 | 32 | 025849 | 007872 |
| 29 | 974160 | 992119 | 982050 | 1017949 | 31 | 025830 | 007880 |
| 30 | 974188 | 992110 | 982078 | 1017921 | 30 | 025811 | 007889 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 56 | | |

| | Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of sine | com. ar of tang. |
|---|---|---|---|---|---|---|---|
| 0 | 974188 | 992110 | 982078 | 1017921 | 30 | 025811 | 007893 |
| 1 | 974208 | 992102 | 982105 | 1017894 | 29 | 025791 | 007897 |
| 2 | 974227 | 992093 | 982133 | 1017866 | 28 | 025772 | 007906 |
| 3 | 974246 | 992085 | 982160 | 1017839 | 27 | 025753 | 007914 |
| 4 | 974265 | 992077 | 982188 | 1017811 | 26 | 025734 | 007922 |
| 5 | 974284 | 992068 | 982215 | 1017784 | 25 | 025715 | 007931 |
| 6 | 974303 | 992060 | 982242 | 1017757 | 24 | 025696 | 007939 |
| 7 | 974322 | 992052 | 982270 | 1017729 | 23 | 025677 | 007948 |
| 8 | 974341 | 992043 | 982297 | 1017702 | 22 | 025658 | 007956 |
| 9 | 974360 | 992035 | 982325 | 1017674 | 21 | 025639 | 007964 |
| 10 | 974379 | 992026 | 982352 | 1017647 | 20 | 025620 | 007973 |
| 11 | 974398 | 992018 | 982379 | 1017620 | 19 | 025601 | 007981 |
| 12 | 974417 | 992009 | 982407 | 1017592 | 18 | 025582 | 007990 |
| 13 | 974436 | 992001 | 982434 | 1017565 | 17 | 025563 | 007998 |
| 14 | 974454 | 991993 | 982461 | 1017538 | 16 | 025545 | 008006 |
| 15 | 974473 | 991984 | 982489 | 1017510 | 15 | 025526 | 008015 |
| 16 | 974492 | 991976 | 982516 | 1017483 | 14 | 025507 | 008023 |
| 17 | 974511 | 991967 | 982543 | 1017456 | 13 | 025488 | 008032 |
| 18 | 974530 | 991959 | 982571 | 1017428 | 12 | 025469 | 008040 |
| 19 | 974549 | 991950 | 982598 | 1017401 | 11 | 025450 | 008049 |
| 20 | 974568 | 991942 | 982625 | 1017374 | 10 | 025431 | 008057 |
| 21 | 974587 | 991933 | 982653 | 1017346 | 9 | 025412 | 008066 |
| 22 | 974605 | 991925 | 982680 | 1017319 | 8 | 025394 | 008074 |
| 23 | 974624 | 991916 | 982707 | 1017292 | 7 | 025375 | 008083 |
| 24 | 974643 | 991908 | 982736 | 1017264 | 6 | 025356 | 008091 |
| 25 | 974662 | 991899 | 982762 | 1017237 | 5 | 025337 | 008100 |
| 26 | 974681 | 991891 | 982789 | 1017210 | 4 | 025318 | 008108 |
| 27 | 974699 | 991882 | 982816 | 1017183 | 3 | 025300 | 008117 |
| 28 | 974718 | 991874 | 982844 | 1017155 | 2 | 025281 | 008125 |
| 29 | 974737 | 991865 | 982871 | 1017128 | 1 | 025262 | 008134 |
| 30 | 974756 | 991857 | 982898 | 1017101 | 0 | 025243 | 008142 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | | 56 | |

| 34 | Sine. | Sine compl. | Tang. | Tangent complem. | | cons. of sine. | cons. of sin. |
|---|---|---|---|---|---|---|---|
| 0 | 974756 | 991857 | 982898 | 1017101 | 60 | 025243 | 00814 |
| 1 | 974774 | 991848 | 982925 | 1017074 | 59 | 025225 | 00815 |
| 2 | 974793 | 991840 | 982953 | 1017046 | 58 | 025206 | 00815 |
| 3 | 974812 | 991831 | 982980 | 1017019 | 57 | 025187 | 00816 |
| 4 | 974830 | 991823 | 983007 | 1016992 | 56 | 025169 | 00817 |
| 5 | 974849 | 991814 | 983034 | 1016965 | 55 | 025150 | 00818 |
| 6 | 974868 | 991806 | 983062 | 1016937 | 54 | 025131 | 00819 |
| 7 | 974886 | 991797 | 983089 | 1016910 | 53 | 025113 | 00820 |
| 8 | 974905 | 991789 | 983116 | 1016883 | 52 | 025094 | 00820 |
| 9 | 974924 | 991780 | 983143 | 1016856 | 51 | 025075 | 00821 |
| 10 | 974942 | 991771 | 983170 | 1016829 | 50 | 025057 | 00822 |
| 11 | 974961 | 991763 | 983198 | 1016801 | 49 | 025038 | 00822 |
| 12 | 974980 | 991754 | 983225 | 1016774 | 48 | 25019 | 00824 |
| 13 | 974998 | 991746 | 983252 | 1016747 | 47 | 025001 | 00825 |
| 14 | 975017 | 991737 | 983279 | 1016720 | 46 | 024982 | 00826 |
| 15 | 975035 | 991729 | 983306 | 1016693 | 45 | 024964 | 00827 |
| 16 | 975054 | 991720 | 983333 | 1016666 | 44 | 024945 | 00827 |
| 17 | 975072 | 991711 | 983361 | 1016638 | 43 | 024927 | 00828 |
| 18 | 975091 | 991703 | 983388 | 1016611 | 42 | 024908 | 00829 |
| 19 | 975109 | 991694 | 983415 | 1016584 | 41 | 024890 | 00830 |
| 20 | 975128 | 991685 | 983442 | 1016551 | 40 | 02487 | 00831 |
| 21 | 975146 | 991677 | 983469 | 1016530 | 39 | 024853 | 00832 |
| 22 | 975165 | 991668 | 983496 | 1016503 | 38 | 024834 | 00833 |
| 23 | 975183 | 991660 | 983523 | 1016476 | 37 | 024816 | 00833 |
| 24 | 975202 | 991651 | 983550 | 1016449 | 36 | 024797 | 00834 |
| 25 | 975220 | 991642 | 983578 | 1016421 | 35 | 024779 | 00835 |
| 26 | 975239 | 991634 | 983605 | 1016394 | 34 | 024760 | 00836 |
| 27 | 975257 | 991625 | 983632 | 1016367 | 33 | 024742 | 00837 |
| 28 | 975276 | 991616 | 983659 | 1016340 | 32 | 024723 | 00838 |
| 29 | 975295 | 991608 | 983686 | 1016313 | 31 | 024705 | 00839 |
| 30 | 975312 | 991599 | 983713 | 1016286 | 30 | 024687 | 00840 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 55 | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of sine. | com. ar of tan. c. |
|---|---|---|---|---|---|---|
| 975312 | 991599 | 983713 | 1016286 | 30 | 024687 | 008400 |
| 975331 | 991590 | 983740 | 1016259 | 29 | 024668 | 008409 |
| 975349 | 991582 | 983767 | 1016232 | 28 | 024650 | 008418 |
| 975367 | 991573 | 983794 | 1016205 | 27 | 024632 | 008426 |
| 975386 | 991564 | 983821 | 1016178 | 26 | 024613 | 008435 |
| 975404 | 991555 | 983848 | 1016151 | 25 | 024593 | 008444 |
| 975422 | 991547 | 983875 | 1016124 | 24 | 024577 | 008452 |
| 975441 | 991538 | 983902 | 1016097 | 23 | 024558 | 008461 |
| 975459 | 991529 | 983929 | 1016070 | 22 | 024540 | 008460 |
| 975477 | 991521 | 983956 | 1016043 | 21 | 024522 | 008478 |
| 975496 | 991512 | 983983 | 1016016 | 20 | 024503 | 008487 |
| 975514 | 991503 | 984010 | 1015989 | 19 | 024485 | 008496 |
| 975532 | 991494 | 984037 | 1015962 | 18 | 024467 | 008505 |
| 975550 | 991486 | 984064 | 1015935 | 17 | 024449 | 008513 |
| 975565 | 991477 | 984091 | 1015908 | 16 | 024430 | 008522 |
| 975587 | 991468 | 984118 | 1015981 | 15 | 024412 | 008531 |
| 975605 | 991459 | 984145 | 1015854 | 14 | 024394 | 008540 |
| 975623 | 991450 | 984172 | 1015827 | 13 | 024376 | 008549 |
| 975641 | 991442 | 984100 | 1015800 | 12 | 024358 | 008557 |
| 975659 | 991433 | 984226 | 1015773 | 11 | 024340 | 008566 |
| 975678 | 991424 | 984252 | 1015746 | 10 | 024321 | 008575 |
| 975696 | 991415 | 984280 | 1015719 | 9 | 024303 | 008584 |
| 975714 | 991407 | 984307 | 1015692 | 8 | 024285 | 008592 |
| 975732 | 991398 | 984334 | 1015665 | 7 | 024267 | 008691 |
| 975750 | 991389 | 984361 | 1015638 | 6 | 024249 | 008610 |
| 975768 | 991380 | 984388 | 1015611 | 5 | 024231 | 008619 |
| 975786 | 991371 | 984415 | 1015584 | 4 | 024213 | 008628 |
| 975804 | 991362 | 984441 | 1015558 | 3 | 024195 | 008637 |
| 975822 | 991354 | 984468 | 1015531 | 2 | 024176 | 008645 |
| 975841 | 991345 | 984495 | 1015504 | 1 | 024158 | 008654 |
| 975859 | 991336 | 984522 | 1015477 | 0 | 024140 | 008663 |
| Sine compl. | Sine. | Tangent. complem | Tang. | 55 | | |

| 35 | Sine. | Sine compl. | Tang. | Tangent compl. | | com. ar. of sine | com. ar. of tan. |
|---|---|---|---|---|---|---|---|
| 0 | 975859 | 991336 | 964522 | 1015477 | 60 | 024140 | 0046 |
| 1 | 975877 | 991327 | 984549 | 1015450 | 59 | 024122 | 0086 |
| 2 | 975895 | 991318 | 984576 | 1015423 | 58 | 024104 | 0086 |
| 3 | 975913 | 991309 | 984603 | 1015396 | 57 | 024086 | 0086 |
| 4 | 975931 | 991301 | 984630 | 1015369 | 56 | 024068 | 0086 |
| 5 | 975949 | 991292 | 984657 | 1015342 | 55 | 024050 | 0087 |
| 6 | 975967 | 991283 | 984683 | 1015316 | 54 | 024032 | 0087 |
| 7 | 975985 | 991274 | 984710 | 1015289 | 53 | 024014 | 0087 |
| 8 | 976003 | 991265 | 984737 | 1015262 | 52 | 023996 | 0087 |
| 9 | 976021 | 991256 | 984764 | 1015235 | 51 | 023978 | 0087 |
| 10 | 976038 | 991247 | 984791 | 1015208 | 50 | 023966 | 0087 |
| 11 | 976056 | 991238 | 984818 | 1015181 | 49 | 023943 | 0087 |
| 12 | 976074 | 991229 | 984844 | 1015155 | 48 | 023925 | 0087 |
| 13 | 976092 | 991220 | 984871 | 1015128 | 47 | 023907 | 0087 |
| 14 | 976110 | 991212 | 984898 | 1015101 | 46 | 023889 | 0087 |
| 15 | 976128 | 991203 | 984925 | 1015074 | 45 | 023871 | 0087 |
| 16 | 976146 | 991194 | 984952 | 1015047 | 44 | 023813 | 0088 |
| 17 | 976164 | 991185 | 984978 | 1015021 | 43 | 023835 | 0088 |
| 18 | 976182 | 991176 | 985005 | 1014994 | 42 | 023817 | 0088 |
| 19 | 976199 | 991167 | 985032 | 1014967 | 41 | 023800 | 0088 |
| 20 | 976217 | 991158 | 985059 | 1014940 | 40 | 023782 | 0088 |
| 21 | 976235 | 991149 | 985086 | 1014913 | 39 | 023764 | 0088 |
| 22 | 976253 | 991140 | 985112 | 1014887 | 38 | 023746 | 0088 |
| 23 | 976271 | 991131 | 985139 | 1014860 | 37 | 023728 | 0088 |
| 24 | 976288 | 991122 | 985166 | 1014833 | 36 | 023711 | 0088 |
| 25 | 976306 | 991113 | 985193 | 1014806 | 35 | 023693 | 0088 |
| 26 | 976324 | 991104 | 985219 | 1014780 | 34 | 023675 | 0088 |
| 27 | 976342 | 991095 | 985246 | 1014753 | 33 | 023657 | 0089 |
| 28 | 976359 | 991086 | 985273 | 1014726 | 32 | 023640 | 0089 |
| 29 | 976377 | 991077 | 985300 | 1014699 | 31 | 023622 | 0089 |
| 30 | 976395 | 991068 | 985326 | 1014673 | 30 | 023604 | 0089 |
| | Sine compl. | Sine. | Tangent compl. | Tang. | | 54 | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of sine | com. ar of tang. |
|---|---|---|---|---|---|---|
| 976395 | 991068 | 985326 | 1014673 | 30 | 023604 | 008931 |
| 976413 | 991059 | 985353 | 1014646 | 29 | 023586 | 008940 |
| 976430 | 991050 | 985380 | 1014619 | 28 | 023569 | 008949 |
| 976448 | 991041 | 985406 | 1014593 | 27 | 023551 | 008958 |
| 976466 | 991032 | 985433 | 1014566 | 26 | 023533 | 008967 |
| 976482 | 991023 | 985460 | 1014539 | 25 | 023516 | 008976 |
| 976501 | 991014 | 985487 | 1014512 | 24 | 023498 | 008985 |
| 976519 | 991005 | 985513 | 1014486 | 23 | 023480 | 008994 |
| 976536 | 990996 | 985540 | 1014459 | 22 | 023463 | 009003 |
| 976554 | 990987 | 985567 | 1014432 | 21 | 023445 | 009012 |
| 976571 | 990978 | 985593 | 1014406 | 20 | 023428 | 009021 |
| 976589 | 990969 | 985620 | 1014379 | 19 | 023410 | 009030 |
| 976607 | 990960 | 985647 | 1014352 | 18 | 023392 | 009039 |
| 976624 | 990950 | 985673 | 1014326 | 17 | 023375 | 009049 |
| 976642 | 990941 | 985700 | 1014299 | 16 | 023357 | 009058 |
| 976659 | 990932 | 985727 | 1014272 | 15 | 023340 | 009067 |
| 976677 | 990923 | 985753 | 1014246 | 14 | 023322 | 009076 |
| 976694 | 990914 | 985780 | 1014219 | 13 | 023305 | 009085 |
| 976712 | 990905 | 985806 | 1014193 | 12 | 023287 | 009094 |
| 976729 | 990896 | 98·833 | 1014166 | 11 | 023270 | 009103 |
| 976747 | 990833 | 985860 | 1014139 | 10 | 023252 | 009112 |
| 976764 | 990878 | 985886 | 1014113 | 9 | 023235 | 009122 |
| 976782 | 990869 | 985913 | 1014086 | 8 | 023217 | 009130 |
| 976799 | 990859 | 985940 | 1014059 | 7 | 023200 | 009140 |
| 976817 | 990850 | 985966 | 1014033 | 6 | 023182 | 009149 |
| 976834 | 990841 | 985993 | 1014006 | 5 | 023165 | 009158 |
| 976852 | 990832 | 986019 | 1013980 | 4 | 023147 | 009167 |
| 976869 | 990823 | 986046 | 1013953 | 3 | 023130 | 009176 |
| 976887 | 990814 | 986072 | 1013927 | 2 | 023112 | 009185 |
| 976904 | 990804 | 986099 | 1013900 | 1 | 023095 | 009195 |
| 976921 | 990795 | 986126 | 1013873 | 0 | 023078 | 009204 |
| Sine compl. | Sine. | Tangent. complem | Tang. | | 54 | |

| 36 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar. of fine | com. of fin |
|---|---|---|---|---|---|---|---|
| 0 | 976921 | 990795 | 986126 | 1013873 | 60 | 023078 | 009 |
| 1 | 976939 | 990786 | 986152 | 1013847 | 59 | 023060 | 009 |
| 2 | 976956 | 990777 | 986179 | 1013820 | 58 | 023043 | 009 |
| 3 | 976973 | 990768 | 986205 | 1013794 | 57 | 023026 | 009 |
| 4 | 976991 | 990759 | 986232 | 1013767 | 56 | 023008 | 009 |
| 5 | 977008 | 990749 | 986258 | 1013741 | 55 | 022991 | 009 |
| 6 | 977026 | 990740 | 986285 | 1013714 | 54 | 022973 | 009 |
| 7 | 977043 | 990731 | 986311 | 1013688 | 53 | 022956 | 009 |
| 8 | 977060 | 990722 | 986338 | 1013661 | 52 | 022939 | 009 |
| 9 | 977077 | 990712 | 986365 | 1013635 | 51 | 022922 | 009 |
| 10 | 977095 | 990703 | 986391 | 1013608 | 50 | 022904 | 009 |
| 11 | 977112 | 990694 | 986418 | 1013581 | 49 | 022887 | 009 |
| 12 | 977129 | 990685 | 986444 | 1013555 | 48 | 022870 | 009 |
| 13 | 977147 | 990675 | 986471 | 1013528 | 47 | 022852 | 009 |
| 14 | 977164 | 990666 | 986497 | 1013502 | 46 | 022835 | 009 |
| 15 | 977181 | 990657 | 986524 | 1013475 | 45 | 022818 | 009 |
| 16 | 977198 | 990648 | 986550 | 1013449 | 44 | 022801 | 009 |
| 17 | 977215 | 990638 | 986577 | 1013422 | 43 | 022784 | 009 |
| 18 | 977233 | 990629 | 986603 | 1013396 | 42 | 022766 | 009 |
| 19 | 977250 | 990620 | 986629 | 1013370 | 41 | 022749 | 009 |
| 20 | 977267 | 990611 | 986656 | 1013343 | 40 | 022732 | 009 |
| 21 | 977284 | 990601 | 986682 | 1013317 | 39 | 022715 | 009 |
| 22 | 977301 | 990592 | 986709 | 1013290 | 38 | 022698 | 009 |
| 23 | 977319 | 990583 | 986735 | 1013264 | 37 | 022681 | 009 |
| 24 | 977336 | 990573 | 986762 | 1013237 | 36 | 022663 | 009 |
| 25 | 977353 | 990564 | 986788 | 1013211 | 35 | 022646 | 009 |
| 26 | 977370 | 990555 | 986815 | 1013184 | 34 | 022629 | 009 |
| 27 | 977387 | 990545 | 986841 | 1013158 | 33 | 022612 | 009 |
| 28 | 977404 | 990536 | 986868 | 1013131 | 32 | 022595 | 009 |
| 29 | 977421 | 990527 | 986894 | 1013105 | 31 | 022578 | 009 |
| 30 | 977438 | 990517 | 986920 | 1013079 | 30 | 022561 | 009 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 53 | | |

| Sine | Sine comple. | Tang | Tangent comple. | | com. ar of sine. | com. ar of sin cō |
|---|---|---|---|---|---|---|
| 977438 | 990517 | 986920 | 1013079 | 30 | 022561 | 009484 |
| 977455 | 990508 | 986947 | 1013052 | 29 | 022544 | 009491 |
| 977472 | 990499 | 986973 | 1013026 | 28 | 022527 | 009500 |
| 977489 | 990489 | 987000 | 1012999 | 27 | 022510 | 009510 |
| 977506 | 990480 | 987026 | 1012973 | 26 | 022493 | 009519 |
| 977523 | 990471 | 987056 | 1012947 | 25 | 022470 | 009528 |
| 977541 | 990461 | 987079 | 1012920 | 24 | 022458 | 009538 |
| 977558 | 990452 | 987105 | 1012894 | 23 | 022441 | 009547 |
| 977575 | 990442 | 987132 | 1012867 | 22 | 022424 | 009557 |
| 977591 | 990433 | 987158 | 1012841 | 21 | 022408 | 009566 |
| 977608 | 990424 | 987184 | 1012815 | 20 | 023391 | 009575 |
| 977625 | 990414 | 987211 | 1012788 | 19 | 022374 | 009585 |
| 977642 | 990405 | 987237 | 1012762 | 18 | 022357 | 009594 |
| 977659 | 990395 | 987263 | 1012736 | 17 | 022340 | 009604 |
| 977676 | 990386 | 987290 | 1012709 | 16 | 022323 | 009613 |
| 977693 | 990377 | 987316 | 1012683 | 15 | 022306 | 009622 |
| 977710 | 990367 | 987343 | 1012656 | 14 | 022289 | 009632 |
| 977727 | 990358 | 987369 | 1012630 | 13 | 022272 | 009641 |
| 977744 | 990348 | 987395 | 1012604 | 12 | 022255 | 009651 |
| 977761 | 990339 | 987422 | 1012577 | 11 | 022238 | 009660 |
| 977778 | 990329 | 987448 | 1012551 | 10 | 022221 | 009670 |
| 977795 | 990320 | 987474 | 1012525 | 9 | 022204 | 009679 |
| 977811 | 990310 | 987501 | 1012498 | 8 | 022188 | 009689 |
| 977828 | 990301 | 987527 | 1012472 | 7 | 022171 | 009698 |
| 977845 | 99029 | 987553 | 1012446 | 6 | 022154 | 009708 |
| 977862 | 990282 | 987579 | 1012420 | 5 | 022137 | 009717 |
| 977879 | 990272 | 987606 | 1012393 | 4 | 022120 | 009727 |
| 977895 | 990263 | 987632 | 1012367 | 3 | 022104 | 009736 |
| 977912 | 990253 | 987658 | 1012341 | 2 | 022087 | 009746 |
| 977929 | 990244 | 987685 | 1012314 | 1 | 022070 | 009755 |
| 977946 | 990234 | 987711 | 1012288 | 0 | 022053 | 009765 |
| Sine comple. | Sine. | Tangent comple. | Tang. | 53 | | |

| 37 | Sine. | Sine compl. | Tang. | Tangent compem. | | com. ar. of sine. | com. of sine |
|---|---|---|---|---|---|---|---|
| 0 | 977946 | 990234 | 987711 | 1012288 | 60 | 022053 | 0097 |
| 1 | 977963 | 990225 | 987737 | 1012262 | 59 | 022036 | 0097 |
| 2 | 977979 | 990215 | 987764 | 1012236 | 58 | 022020 | 0097 |
| 3 | 977996 | 990206 | 987790 | 1012209 | 57 | 022003 | 0097 |
| 4 | 978013 | 990196 | 987816 | 1012183 | 56 | 021986 | 0098 |
| 5 | 978030 | 990187 | 987842 | 1012157 | 55 | 021970 | 0098 |
| 6 | 978046 | 990177 | 987869 | 1012130 | 54 | 021953 | 0098 |
| 7 | 978063 | 990168 | 987895 | 1012104 | 53 | 021936 | 0098 |
| 8 | 978080 | 990158 | 987921 | 1012078 | 52 | 021919 | 0098 |
| 9 | 978096 | 990148 | 987947 | 1012052 | 51 | 021903 | 0098 |
| 10 | 978113 | 990139 | 983974 | 1012025 | 50 | 021886 | 0098 |
| 11 | 978130 | 990129 | 988000 | 1011999 | 49 | 021869 | 0098 |
| 12 | 978146 | 990120 | 988026 | 1011973 | 48 | 021853 | 0098 |
| 13 | 978163 | 990110 | 988052 | 1011947 | 47 | 021836 | 0098 |
| 14 | 978180 | 990101 | 988079 | 1011921 | 46 | 021819 | 0098 |
| 15 | 978196 | 990091 | 988105 | 1011894 | 45 | 021803 | 0099 |
| 16 | 978213 | 990081 | 988131 | 1011868 | 44 | 021786 | 0099 |
| 17 | 978229 | 990072 | 988157 | 1011842 | 43 | 021770 | 0099 |
| 18 | 978246 | 990062 | 988183 | 1011816 | 42 | 021753 | 0099 |
| 19 | 978263 | 990052 | 688210 | 1011789 | 41 | 021736 | 0099 |
| 20 | 978279 | 990043 | 988236 | 1011763 | 40 | 021720 | 0099 |
| 21 | 978296 | 990033 | 988262 | 1011737 | 39 | 021703 | 0099 |
| 22 | 978312 | 990024 | 988288 | 1011711 | 38 | 021687 | 0099 |
| 23 | 978329 | 990014 | 988314 | 1011685 | 37 | 021670 | 0099 |
| 24 | 978345 | 990004 | 988341 | 1011658 | 36 | 021654 | 0099 |
| 25 | 978362 | 989995 | 988367 | 1011632 | 35 | 021637 | 0000 |
| 26 | 978378 | 989985 | 988393 | 1011606 | 34 | 021621 | 0000 |
| 27 | 978395 | 989975 | 988419 | 1011580 | 33 | 021604 | 0000 |
| 28 | 978411 | 989966 | 988445 | 1011554 | 32 | 021588 | 0000 |
| 29 | 978428 | 989956 | 988471 | 1011528 | 31 | 021571 | 0000 |
| 30 | 978444 | 989946 | 988498 | 1011501 | 30 | 021555 | 0000 |
| | Sine compl. | Sine. | Tangent complem | Tang. | 52 | | |

| Sine. | Sine comple. | Tang | Tangent comple. | | cos. or of sine. | cos. or of sin. |
|---|---|---|---|---|---|---|
| 78444 | 989946 | 988498 | 1011501 | 30 | 021555 | 010053 |
| 78461 | 989936 | 988524 | 1011475 | 29 | 021538 | 010063 |
| 78477 | 989927 | 988550 | 1011449 | 28 | 021522 | 010072 |
| 78494 | 989917 | 988576 | 1011423 | 27 | 021505 | 010082 |
| 78510 | 989907 | 988602 | 1011397 | 26 | 021489 | 010092 |
| 78526 | 989898 | 988628 | 1011371 | 25 | 021473 | 010101 |
| 78543 | 989888 | 988654 | 1011345 | 24 | 021456 | 010111 |
| 78559 | 989878 | 988681 | 1011318 | 23 | 021440 | 010121 |
| 78576 | 989868 | 988707 | 1011292 | 22 | 021423 | 011131 |
| 78592 | 989859 | 988733 | 1011266 | 21 | 021407 | 010140 |
| 78608 | 989849 | 988759 | 1011240 | 20 | 021391 | 010150 |
| 78625 | 989839 | 988785 | 1011214 | 19 | 021374 | 010160 |
| 78641 | 989829 | 988811 | 1011188 | 18 | 021358 | 010170 |
| 78657 | 989820 | 988837 | 1011162 | 17 | 021342 | 010179 |
| 78674 | 989810 | 988863 | 1011136 | 16 | 021325 | 010189 |
| 78690 | 989800 | 988889 | 1011110 | 15 | 021309 | 010199 |
| 78706 | 989790 | 988916 | 1011083 | 14 | 021293 | 010209 |
| 78723 | 989781 | 988942 | 1011057 | 13 | 021276 | 010218 |
| 78739 | 989771 | 988968 | 1011031 | 12 | 021266 | 010228 |
| 8755 | 989761 | 988994 | 1011005 | 11 | 021244 | 010238 |
| 78772 | 989751 | 989020 | 1010979 | 10 | 021227 | 010248 |
| 78788 | 989741 | 989046 | 1010953 | 9 | 021211 | 010258 |
| 78804 | 989731 | 989072 | 1010927 | 8 | 021195 | 010268 |
| 78820 | 989722 | 989098 | 1010901 | 7 | 021179 | 010277 |
| 78837 | 989712 | 989124 | 1010875 | 6 | 021162 | 010287 |
| 78853 | 989702 | 989150 | 1010849 | 5 | 021146 | 010297 |
| 78869 | 989692 | 989176 | 1010823 | 4 | 021130 | 010307 |
| 78885 | 989682 | 989202 | 1010797 | 3 | 021114 | 010317 |
| 78901 | 989672 | 989228 | 1010771 | 2 | 021098 | 010327 |
| 78918 | 989663 | 989254 | 1010745 | 1 | 021081 | 010336 |
| 78934 | 989653 | 989280 | 1010719 | 0 | 021065 | 010346 |
| Sine comple. | Sine. | Tangent comple. | Tang. | 52 | | |

| 38 | Sine. | Sine compl. | Tang. | Tangent compem. | | com. sr. of sine | |
|---|---|---|---|---|---|---|---|
| 0 | 978934 | 989653 | 989280 | 1010719 | 60 | 021065 | 010 |
| 1 | 978950 | 989643 | 989307 | 1010692 | 59 | 021049 | 010 |
| 2 | 978966 | 989633 | 989333 | 1010666 | 58 | 021033 | 010 |
| 3 | 978982 | 989623 | 989359 | 1010640 | 57 | 021017 | 010 |
| 4 | 978998 | 989613 | 989385 | 1010614 | 56 | 021001 | 010 |
| 5 | 979014 | 989603 | 989411 | 1010588 | 55 | 020985 | 010 |
| 6 | 979031 | 989593 | 989437 | 1010562 | 54 | 020968 | 010 |
| 7 | 979047 | 989583 | 989463 | 1010536 | 53 | 020952 | 010 |
| 8 | 979063 | 989574 | 989489 | 1010510 | 52 | 020936 | 010 |
| 9 | 979079 | 989564 | 989515 | 1010484 | 51 | 020920 | 010 |
| 10 | 979095 | 989554 | 989541 | 1010458 | 50 | 020904 | 010 |
| 11 | 979111 | 989544 | 989567 | 1010432 | 49 | 020888 | 010 |
| 12 | 979127 | 989534 | 989593 | 1010406 | 48 | 020872 | 010 |
| 13 | 979143 | 989524 | 989619 | 1010380 | 47 | 020856 | 010 |
| 14 | 979159 | 989514 | 989645 | 1010354 | 46 | 020840 | 010 |
| 15 | 979175 | 989504 | 989671 | 1010328 | 45 | 020824 | 010 |
| 16 | 979191 | 989494 | 989697 | 1010302 | 44 | 020808 | 010 |
| 17 | 979207 | 989484 | 989723 | 1010276 | 43 | 020792 | 010 |
| 18 | 979223 | 989474 | 989749 | 1010250 | 42 | 020776 | 010 |
| 19 | 979239 | 989464 | 989775 | 1010224 | 41 | 020760 | 010 |
| 20 | 979255 | 989454 | 989801 | 1010198 | 40 | 020744 | 010 |
| 21 | 979271 | 989444 | 989827 | 1010173 | 39 | 020728 | 010 |
| 22 | 979287 | 989434 | 989852 | 1010147 | 38 | 020712 | 010 |
| 23 | 979303 | 989424 | 989878 | 1010121 | 37 | 020696 | 010 |
| 24 | 979319 | 989414 | 989904 | 1010095 | 36 | 020680 | 010 |
| 25 | 979335 | 989404 | 989930 | 1010069 | 35 | 020664 | 010 |
| 26 | 979351 | 989394 | 989956 | 1010043 | 34 | 020648 | 010 |
| 27 | 979367 | 989384 | 989982 | 1010017 | 33 | 020632 | 010 |
| 28 | 979383 | 989374 | 990008 | 1009991 | 32 | 020616 | 010 |
| 29 | 979399 | 989364 | 990034 | 1009965 | 31 | 020600 | 010 |
| 30 | 979417 | 989354 | 990060 | 1009939 | 30 | 020585 | 010 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | | 51 | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. æ. of sine. | com. æ of sin. 68. |
|---|---|---|---|---|---|---|
| 979414 | 989354 | 990069 | 1009939 | 30 | 020585 | 010645 |
| 979430 | 989344 | 990086 | 1009913 | 29 | 020566 | 010655 |
| 979446 | 989334 | 990112 | 1009887 | 28 | 020553 | 010665 |
| 979462 | 989324 | 990138 | 1009861 | 27 | 020537 | 010675 |
| 979478 | 989314 | 990164 | 1009835 | 26 | 020521 | 010685 |
| 979494 | 989304 | 990190 | 1009809 | 25 | 020505 | 010695 |
| 979510 | 989294 | 990216 | 1009783 | 24 | 020486 | 010705 |
| 979525 | 989283 | 990241 | 1009758 | 23 | 020474 | 010716 |
| 979541 | 989273 | 990267 | 1009732 | 22 | 020458 | 010726 |
| 979557 | 989263 | 990293 | 1009706 | 21 | 020442 | 010736 |
| 979573 | 989253 | 990319 | 1009680 | 20 | 020426 | 010746 |
| 979589 | 989243 | 990345 | 1009654 | 19 | 020410 | 010756 |
| 979604 | 989233 | 990371 | 1009628 | 18 | 020395 | 010766 |
| 979620 | 989223 | 990397 | 1009602 | 17 | 020379 | 010776 |
| 979636 | 989213 | 990423 | 1009576 | 16 | 020363 | 010786 |
| 979652 | 989203 | 990449 | 1009550 | 15 | 020347 | 010796 |
| 979667 | 989192 | 990474 | 1009525 | 14 | 020332 | 010807 |
| 979683 | 989182 | 990500 | 1009499 | 13 | 020316 | 010817 |
| 979699 | 989172 | 990526 | 1009473 | 12 | 020300 | 010827 |
| 979715 | 989162 | 990552 | 1009447 | 11 | 020284 | 010837 |
| 979730 | 989152 | 990578 | 1009421 | 10 | 020269 | 010847 |
| 979746 | 989142 | 990604 | 1009395 | 9 | 020253 | 010857 |
| 979762 | 989131 | 990630 | 1009369 | 8 | 020237 | 010868 |
| 979777 | 989121 | 990656 | 1009343 | 7 | 020222 | 010878 |
| 979793 | 989111 | 990681 | 1009318 | 6 | 020206 | 010888 |
| 979809 | 989101 | 990707 | 1009292 | 5 | 020190 | 010898 |
| 979824 | 989091 | 990733 | 1009266 | 4 | 020175 | 010908 |
| 979830 | 989080 | 990759 | 1009240 | 3 | 020159 | 010919 |
| 979855 | 989070 | 990789 | 1009214 | 2 | 020144 | 010929 |
| 979871 | 989060 | 990811 | 1009188 | 1 | 020128 | 010939 |
| 979887 | 989050 | 990836 | 1009163 | 0 | 020112 | 010949 |
| Sine compl. | Sine. | Tangent complem. | Tang. | 51 | | |

| 39 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. ar of fine | com. ar of fin. ch |
|---|---|---|---|---|---|---|---|
| 0 | 979887 | 989050 | 990836 | 1009163 | 60 | 020112 | 010949 |
| 1 | 979902 | 989040 | 990862 | 1009137 | 59 | 020097 | 010959 |
| 2 | 979918 | 989029 | 990888 | 1009111 | 58 | 020081 | 010970 |
| 3 | 979933 | 989019 | 990914 | 1009085 | 57 | 020066 | 010980 |
| 4 | 979949 | 989009 | 990940 | 1009059 | 56 | 020050 | 010990 |
| 5 | 979965 | 988999 | 990966 | 1009033 | 55 | 020034 | 011000 |
| 6 | 979980 | 988988 | 990991 | 1009008 | 54 | 020019 | 011011 |
| 7 | 979996 | 988978 | 991017 | 1008982 | 53 | 020003 | 011021 |
| 8 | 980011 | 988968 | 991043 | 1008956 | 52 | 019988 | 011032 |
| 9 | 980027 | 988957 | 991069 | 1008930 | 51 | 019972 | 011043 |
| 10 | 980043 | 988947 | 991095 | 1008904 | 50 | 019957 | 011053 |
| 11 | 980058 | 988937 | 991120 | 1008879 | 49 | 019941 | 011064 |
| 12 | 980073 | 988927 | 991146 | 1008853 | 48 | 019926 | 011074 |
| 13 | 980089 | 988916 | 991172 | 1008827 | 47 | 019910 | 011085 |
| 14 | 980104 | 988906 | 991198 | 1008801 | 46 | 019895 | 011095 |
| 15 | 980120 | 988896 | 991224 | 1008775 | 45 | 019879 | 011106 |
| 16 | 980135 | 988885 | 991249 | 1008750 | 44 | 019864 | 011116 |
| 17 | 980151 | 988875 | 991275 | 1008724 | 43 | 019848 | 011127 |
| 18 | 980166 | 988865 | 991301 | 1008698 | 42 | 019833 | 011137 |
| 19 | 980181 | 988854 | 991327 | 1008672 | 41 | 019818 | 011148 |
| 20 | 980197 | 988844 | 991352 | 1008647 | 40 | 019802 | 011158 |
| 21 | 980212 | 988834 | 991378 | 1008621 | 39 | 019787 | 011169 |
| 22 | 980228 | 988823 | 991404 | 1008595 | 38 | 019771 | 011179 |
| 23 | 980243 | 988813 | 991430 | 1008569 | 37 | 019756 | 011190 |
| 24 | 980258 | 988802 | 991455 | 1008544 | 36 | 019741 | 011200 |
| 25 | 980274 | 988792 | 991481 | 1008518 | 35 | 019725 | 011211 |
| 26 | 980289 | 988781 | 991507 | 1008492 | 34 | 019710 | 011221 |
| 27 | 980305 | 988771 | 991533 | 1008466 | 33 | 019694 | 011232 |
| 28 | 980320 | 988761 | 991558 | 1008441 | 32 | 019679 | 011242 |
| 29 | 980335 | 988751 | 991584 | 1008415 | 31 | 019664 | 011253 |
| 30 | 980351 | 988740 | 991610 | 1008389 | 30 | 019648 | 011263 |
| | Sine comple. | Sine. | Tangent. comple. | Tang. | 50 | | |

| Sine. | Sine compl. | Tang. | Tangent complem. | | com. of Sine | com. of Tan. |
|---|---|---|---|---|---|---|
| 980351 | 998740 | 991610 | 1008389 | 30 | 019648 | 011259 |
| 980366 | 988730 | 991636 | 1008363 | 29 | 019633 | 011269 |
| 980381 | 988719 | 991661 | 1008338 | 28 | 019618 | 011280 |
| 980396 | 988709 | 991687 | 1008312 | 27 | 019603 | 011290 |
| 980412 | 988698 | 991713 | 1008286 | 26 | 019587 | 011301 |
| 980427 | 988688 | 991739 | 1008260 | 25 | 019572 | 011 11 |
| 980442 | 988678 | 991764 | 1008235 | 24 | 019557 | 011321 |
| 980458 | 988667 | 991790 | 1008209 | 23 | 019541 | 011332 |
| 980473 | 988657 | 991816 | 1008183 | 22 | 019526 | 011342 |
| 980488 | 988646 | 991841 | 1008158 | 21 | 019511 | 011353 |
| 980503 | 988636 | 991867 | 1008132 | 20 | 019496 | 011363 |
| 980519 | 988625 | 991893 | 1008106 | 19 | 019480 | 011374 |
| 980534 | 988615 | 991919 | 1008080 | 18 | 019465 | 011384 |
| 980549 | 988604 | 991944 | 1008055 | 17 | 019450 | 011395 |
| 980564 | 988594 | 991970 | 1008029 | 16 | 019435 | 011405 |
| 980579 | 988583 | 991996 | 1008003 | 15 | 019420 | 011416 |
| 980595 | 988573 | 992021 | 1007978 | 14 | 019404 | 011426 |
| 980610 | 988562 | 992047 | 1007952 | 13 | 019389 | 011437 |
| 980625 | 988552 | 992073 | 1007926 | 12 | 019374 | 011447 |
| 980640 | 988541 | 992098 | 1007901 | 11 | 019359 | 011458 |
| 980655 | 988531 | 992124 | 1007875 | 10 | 019344 | 011468 |
| 980670 | 988520 | 992150 | 1007849 | 9 | 019329 | 011479 |
| 980686 | 988510 | 992176 | 1007823 | 8 | 019313 | 011490 |
| 980701 | 988499 | 992201 | 1007798 | 7 | 019298 | 011500 |
| 980716 | 988488 | 992227 | 1007772 | 6 | 019283 | 011511 |
| 980731 | 988478 | 992253 | 1007746 | 5 | 019268 | 011521 |
| 980746 | 988467 | 992278 | 1007721 | 4 | 019253 | 011532 |
| 980761 | 988457 | 992303 | 1007695 | 3 | 019238 | 011542 |
| 980776 | 988446 | 992330 | 1007669 | 2 | 019223 | 011553 |
| 980798 | 988435 | 992355 | 1007644 | 1 | 019208 | 011564 |
| 980806 | 988425 | 992381 | 1007618 | 0 | 019193 | 011574 |
| Sine compl. | Sine. | Tangent complem. | Tang. | | 50 | |

| 40 | Sine. | Sine comple. | Tang. | Tangent comple. | | com. of fine | com. of fin. |
|---|---|---|---|---|---|---|---|
| 0 | 980806 | 988425 | 992381 | 1007618 | 60 | 019193 | 01157 |
| 1 | 980821 | 988414 | 992407 | 1007592 | 59 | 019178 | 01158 |
| 2 | 980836 | 988404 | 992432 | 1007567 | 58 | 019163 | 01159 |
| 3 | 980851 | 988393 | 992458 | 1007542 | 57 | 019148 | 01160 |
| 4 | 980866 | 988382 | 992483 | 1007516 | 56 | 019133 | 01161 |
| 5 | 980881 | 988372 | 992509 | 1007490 | 55 | 019118 | 01162 |
| 6 | 980896 | 988361 | 992535 | 1007464 | 54 | 019103 | 01163 |
| 7 | 980911 | 988351 | 992560 | 1007439 | 53 | 019088 | 01164 |
| 8 | 980926 | 988340 | 992586 | 1007413 | 52 | 019073 | 01165 |
| 9 | 980941 | 988329 | 992612 | 1007387 | 51 | 019058 | 01166 |
| 10 | 980956 | 988319 | 992637 | 1007362 | 50 | 019043 | 01167 |
| 11 | 980971 | 988308 | 992663 | 1007336 | 49 | 019028 | 01168 |
| 12 | 980986 | 988297 | 992689 | 1007310 | 48 | 019013 | 01169 |
| 13 | 981001 | 988287 | 992714 | 1007285 | 47 | 018998 | 01170 |
| 14 | 981017 | 988276 | 992740 | 1007259 | 46 | 018983 | 01171 |
| 15 | 981031 | 988265 | 992765 | 1007234 | 45 | 018968 | 01172 |
| 16 | 981046 | 988254 | 992791 | 1007208 | 44 | 018953 | 01173 |
| 17 | 981061 | 988244 | 992817 | 1007182 | 43 | 018938 | 01174 |
| 18 | 981076 | 988233 | 992842 | 1007157 | 42 | 018923 | 01175 |
| 19 | 981091 | 988222 | 992868 | 1007131 | 41 | 0189 8 | 01176 |
| 20 | 981106 | 988212 | 992893 | 1007106 | 40 | 018893 | 01177 |
| 21 | 981120 | 988201 | 992919 | 1007080 | 39 | 018879 | 01178 |
| 22 | 981135 | 988190 | 992945 | 1007054 | 38 | 018864 | 01179 |
| 23 | 981150 | 988179 | 992970 | 1007029 | 37 | 018849 | 01180 |
| 24 | 981165 | 988169 | 992996 | 1007003 | 36 | 018834 | 01181 |
| 25 | 981180 | 988158 | 993021 | 1006978 | 35 | 018819 | 01182 |
| 26 | 981195 | 988147 | 993047 | 1006952 | 34 | 018804 | 01183 |
| 27 | 981210 | 988136 | 993073 | 1006926 | 33 | 018789 | 01184 |
| 28 | 981224 | 988126 | 993098 | 1006901 | 32 | 018775 | 01185 |
| 29 | 981239 | 988115 | 993124 | 1006875 | 31 | 018760 | 01186 |
| 30 | 981254 | 988104 | 993149 | 1006850 | 30 | 018745 | 01187 |
| | Sine comple. | Sine. | Tangent. complem | Tang. | | 49 | |

| | Sine. | Sine compl. | Tang. | Tangent comple. | | com. ar. of sine | com. ar. of tan. cō. |
|---|---|---|---|---|---|---|---|
| 0 | 981254 | 988104 | 993149 | 1006850 | 30 | 018745 | 011895 |
| 1 | 981269 | 988093 | 993175 | 1006824 | 29 | 018730 | 011906 |
| 2 | 981284 | 988082 | 993201 | 1006798 | 28 | 018715 | 011917 |
| 3 | 981298 | 988072 | 993226 | 1006773 | 27 | 018701 | 011927 |
| 4 | 981313 | 988061 | 993252 | 1006747 | 26 | 018686 | 011938 |
| 5 | 981328 | 988050 | 993277 | 1006722 | 25 | 018671 | 011949 |
| 6 | 981343 | 988039 | 993303 | 1006696 | 24 | 018656 | 011960 |
| 7 | 981357 | 988028 | 993328 | 1006671 | 23 | 018642 | 011971 |
| 8 | 981372 | 988018 | 993354 | 1006645 | 22 | 018627 | 011981 |
| 9 | 981387 | 988007 | 993380 | 1006619 | 21 | 018612 | 011992 |
| 10 | 981401 | 987996 | 993405 | 1006594 | 20 | 018598 | 012003 |
| 11 | 981416 | 987985 | 993431 | 1006568 | 19 | 018583 | 012014 |
| 12 | 981431 | 987974 | 993456 | 1006543 | 18 | 018568 | 012025 |
| 13 | 981446 | 987963 | 993482 | 1006517 | 17 | 018554 | 012036 |
| 14 | 981460 | 987952 | 993507 | 1006492 | 16 | 018539 | 012047 |
| 15 | 981475 | 987941 | 993533 | 1006466 | 15 | 018524 | 012058 |
| 16 | 981489 | 987931 | 993558 | 100644 | 14 | 018510 | 012068 |
| 17 | 981534 | 987920 | 993584 | 1006415 | 13 | 018495 | 012079 |
| 18 | 981519 | 987909 | 993609 | 1006390 | 12 | 018480 | 012090 |
| 19 | 981533 | 987898 | 993635 | 1006364 | 11 | 018466 | 012101 |
| 20 | 981548 | 987887 | 993661 | 1006338 | 10 | 018451 | 012112 |
| 21 | 981563 | 987876 | 993686 | 1006312 | 9 | 018436 | 012122 |
| 22 | 981577 | 987865 | 993712 | 1006287 | 8 | 018422 | 012134 |
| 23 | 981592 | 987854 | 993737 | 1006262 | 7 | 018407 | 012145 |
| 24 | 981606 | 987843 | 993763 | 1006236 | 6 | 018393 | 012156 |
| 25 | 981621 | 987832 | 993788 | 1006211 | 5 | 018378 | 012167 |
| 26 | 981636 | 987821 | 993814 | 1006185 | 4 | 018363 | 012178 |
| 27 | 98165c | 987810 | 993839 | 1006160 | 3 | 018349 | 012189 |
| 28 | 981665 | 987799 | 993865 | 1006134 | 2 | 018334 | 012200 |
| 29 | 981679 | 987788 | 993890 | 1006109 | 1 | 018320 | 012211 |
| 30 | 981694 | 987777 | 993916 | 1006083 | 0 | 018305 | 012222 |
| | Sine compl. | Sine. | Tangent comple. | Tang. | | | |

| 41 | Sinc. | Sine comple. | Tang. | Tangent complem. | | com. ar of fine | com. ar of tn. |
|---|---|---|---|---|---|---|---|
| 0 | 981694 | 987777 | 993916 | 1006083 | 60 | 018305 | 01222 |
| 1 | 981708 | 987767 | 993941 | 1006058 | 59 | 018291 | 01222 |
| 2 | 981723 | 987756 | 993967 | 1006032 | 58 | 018276 | 01222 |
| 3 | 981737 | 987745 | 993992 | 1006007 | 57 | 018262 | 01222 |
| 4 | 981752 | 987734 | 994018 | 1005981 | 56 | 018247 | 01222 |
| 5 | 981766 | 987723 | 994043 | 1005956 | 55 | 018233 | 01222 |
| 6 | 981781 | 987711 | 994069 | 1005930 | 54 | 018218 | 01222 |
| 7 | 981795 | 98770 | 994094 | 1005905 | 53 | 018204 | 01222 |
| 8 | 981810 | 987689 | 994120 | 1005879 | 52 | 018189 | 01223 |
| 9 | 981824 | 987678 | 994145 | 1005854 | 51 | 018175 | 01223 |
| 10 | 981839 | 987667 | 994171 | 1005828 | 50 | 018160 | 01223 |
| 11 | 981853 | 987656 | 994196 | 1005808 | 49 | 018146 | 01223 |
| 12 | 981868 | 987645 | 994222 | 1005777 | 48 | 018131 | 01223 |
| 13 | 981882 | 987634 | 994247 | 1005752 | 47 | 018117 | 01223 |
| 14 | 981896 | 987623 | 994273 | 1005726 | 46 | 018103 | 01223 |
| 15 | 981911 | 987612 | 994298 | 1005701 | 45 | 018088 | 01223 |
| 16 | 981925 | 987601 | 994324 | 1005675 | 44 | 018074 | 01223 |
| 17 | 98 940 | 987590 | 994349 | 1005650 | 43 | 018059 | 01224 |
| 18 | 981954 | 987579 | 994375 | 1005624 | 42 | 018045 | 01224 |
| 19 | 981968 | 987568 | 994400 | 1005599 | 41 | 018031 | 01224 |
| 20 | 981983 | 987557 | 994426 | 1005573 | 40 | 018016 | 01224 |
| 21 | 981997 | 987545 | 994451 | 1005548 | 39 | 018002 | 01224 |
| 22 | 982011 | 987534 | 994477 | 1005522 | 38 | 017988 | 01224 |
| 23 | 982026 | 987523 | 994502 | 1005497 | 37 | 017973 | 01225 |
| 24 | 98204c | 987512 | 994528 | 1005471 | 36 | 017959 | 01225 |
| 25 | 98205 | 987501 | 994553 | 1005446 | 35 | 017945 | 01225 |
| 26 | 982069 | 987490 | 994579 | 1005421 | 34 | 017930 | 01225 |
| 27 | 982083 | 987479 | 994604 | 1005395 | 33 | 017916 | 01225 |
| 28 | 982097 | 987468 | 994629 | 1005370 | 32 | 017902 | 01225 |
| 29 | 982112 | 87455 | 994655 | 1005344 | 31 | 017887 | 01226 |
| 30 | 982126 | 987455 | 994680 | 1005219 | 30 | 017373 | 01226 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | 48 | | |

| | Sine. | Sine compl. | Tang. | Tangent compl. | | com. ar. of sine | com. ar of sin. cō. |
|---|---|---|---|---|---|---|---|
| 0 | 982126 | 987445 | 994680 | 1005319 | 30 | 017873 | 012554 |
| 1 | 982140 | 987434 | 994706 | 1005293 | 29 | 017859 | 012565 |
| 2 | 982155 | 987423 | 994731 | 1005268 | 28 | 017845 | 012576 |
| 3 | 982169 | 987412 | 994757 | 1005242 | 27 | 017830 | 012587 |
| 4 | 982183 | 987400 | 994782 | 1005217 | 26 | 017816 | 012599 |
| 5 | 982197 | 987389 | 994808 | 1005191 | 25 | 017802 | 012610 |
| 6 | 982211 | 987378 | 994833 | 1005166 | 24 | 017788 | 012621 |
| 7 | 982226 | 987367 | 994858 | 1005141 | 23 | 017773 | 012632 |
| 8 | 982240 | 987355 | 994884 | 1005115 | 22 | 017759 | 012644 |
| 9 | 982254 | 987344 | 994909 | 1005090 | 21 | 017745 | 012655 |
| 10 | 982268 | 987333 | 994935 | 1005064 | 20 | 017731 | 012666 |
| 11 | 982283 | 987322 | 994960 | 1005039 | 19 | 017716 | 012677 |
| 12 | 982297 | 987311 | 994986 | 1005013 | 18 | 017702 | 012688 |
| 13 | 982311 | 987299 | 995011 | 1004988 | 17 | 017688 | 012700 |
| 14 | 982325 | 987288 | 995037 | 1004962 | 16 | 017674 | 012711 |
| 15 | 982339 | 987277 | 995062 | 1004937 | 15 | 017660 | 012722 |
| 16 | 982353 | 987265 | 995087 | 1004912 | 14 | 017646 | 012734 |
| 17 | 982368 | 987254 | 995113 | 1004886 | 13 | 017632 | 012745 |
| 18 | 982382 | 987243 | 995138 | 1004861 | 12 | 017617 | 012756 |
| 19 | 982396 | 987232 | 995164 | 1004835 | 11 | 017603 | 012767 |
| 20 | 982410 | 987220 | 995189 | 1004810 | 10 | 017589 | 012779 |
| 21 | 982424 | 987209 | 995215 | 1004784 | 9 | 017575 | 012790 |
| 22 | 982438 | 987198 | 995240 | 1004759 | 8 | 017561 | 012801 |
| 23 | 982452 | 987186 | 995265 | 1004734 | 7 | 017547 | 012813 |
| 24 | 982466 | 987175 | 995291 | 1004708 | 6 | 017533 | 012824 |
| 25 | 982480 | 987164 | 995316 | 1004683 | 5 | 017519 | 012835 |
| 26 | 982494 | 987152 | 995342 | 1004657 | 4 | 017505 | 012847 |
| 27 | 982508 | 987141 | 995367 | 1004632 | 3 | 017491 | 012858 |
| 28 | 982522 | 987130 | 995392 | 1004607 | 2 | 017476 | 012869 |
| 29 | 982537 | 987118 | 995418 | 1004581 | 1 | 017462 | 012881 |
| 30 | 982551 | 987107 | 995443 | 1004556 | 0 | 017448 | 012892 |
| | Sine compl. | Sine. | Tangent compl. | Tang. | 48 | | |

| 42 | Sine. | Sine comple. | Tang. | Tangent complem. | | com. ar of fine | com. ar of tin. |
|---|---|---|---|---|---|---|---|
| 0 | 982551 | 987107 | 995443 | 1004556 | 60 | 017448 | 01289 |
| 1 | 982565 | 987095 | 995469 | 1004530 | 59 | 017434 | 01290 |
| 2 | 982579 | 987084 | 995494 | 1004505 | 58 | 017420 | 01291 |
| 3 | 982593 | 987073 | 995519 | 1004480 | 57 | 017406 | 01292 |
| 4 | 982607 | 987061 | 995545 | 1004454 | 56 | 017392 | 01293 |
| 5 | 982621 | 987050 | 995570 | 1004429 | 55 | 017378 | 01294 |
| 6 | 982635 | 987038 | 995596 | 1004403 | 54 | 017364 | 01296 |
| 7 | 982649 | 987027 | 995621 | 1004378 | 53 | 017350 | 01297 |
| 8 | 982663 | 987016 | 995646 | 1004353 | 52 | 017336 | 01298 |
| 9 | 982677 | 987004 | 995672 | 1004327 | 51 | 017322 | 01299 |
| 10 | 982690 | 986993 | 995697 | 1004302 | 50 | 017309 | 01300 |
| 11 | 982704 | 986981 | 995723 | 1004276 | 49 | 017295 | 01301 |
| 12 | 982718 | 986970 | 995748 | 1004251 | 48 | 017281 | 01302 |
| 13 | 982732 | 986958 | 995773 | 1004226 | 47 | 017267 | 01304 |
| 14 | 982746 | 986947 | 995799 | 1004200 | 46 | 017253 | 01305 |
| 15 | 982760 | 986935 | 995824 | 1004175 | 45 | 017239 | 01306 |
| 16 | 982774 | 986924 | 995850 | 1004149 | 44 | 017225 | 01307 |
| 17 | 982788 | 986913 | 995875 | 1004124 | 43 | 017211 | 01308 |
| 18 | 982802 | 986901 | 995900 | 1004099 | 42 | 017197 | 01309 |
| 19 | 982816 | 986890 | 995926 | 1004073 | 41 | 017183 | 01310 |
| 20 | 982830 | 986878 | 995951 | 1004048 | 40 | 017169 | 01312 |
| 21 | 982843 | 986867 | 995976 | 1004023 | 39 | 017156 | 01313 |
| 22 | 982857 | 986855 | 996002 | 1003997 | 38 | 017142 | 01314 |
| 23 | 982871 | 986843 | 996027 | 1003972 | 37 | 017128 | 01315 |
| 24 | 982885 | 986832 | 996053 | 1003946 | 36 | 017114 | 01316 |
| 25 | 982899 | 986820 | 996078 | 1003921 | 35 | 017100 | 01317 |
| 26 | 982913 | 986809 | 996103 | 1003896 | 34 | 017086 | 01319 |
| 27 | 982926 | 986797 | 996129 | 1003870 | 33 | 017073 | 01320 |
| 28 | 982940 | 986786 | 996154 | 1003845 | 32 | 017059 | 01321 |
| 29 | 982954 | 986774 | 996179 | 1003820 | 31 | 017045 | 01322 |
| 30 | 982968 | 986763 | 996205 | 1003794 | 30 | 017031 | 01323 |
| | Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com ar. of sine | com. ar. of tan. c5 |
|---|---|---|---|---|---|---|
| 982968 | 986763 | 996205 | 1003794 | 30 | 017031 | 013236 |
| 982982 | 986751 | 996230 | 1003769 | 29 | 017057 | 013248 |
| 982995 | 986739 | 996255 | 1003744 | 28 | 017004 | 013260 |
| 983009 | 986728 | 996281 | 1003718 | 27 | 016990 | 013271 |
| 983023 | 986716 | 996306 | 1003693 | 26 | 016976 | 013283 |
| 983037 | 986705 | 996332 | 1003667 | 25 | 016962 | 013294 |
| 983050 | 986693 | 996357 | 1003642 | 24 | 016946 | 013306 |
| 983094 | 986681 | 996382 | 1003617 | 23 | 016935 | 013318 |
| 983078 | 986670 | 996408 | 1003591 | 22 | 016921 | 013329 |
| 983092 | 986658 | 996433 | 1003566 | 21 | 016907 | 013341 |
| 983105 | 986646 | 996458 | 1003541 | 20 | 016894 | 013353 |
| 983119 | 986635 | 996484 | 1003515 | 19 | 016880 | 013364 |
| 983133 | 986623 | 996509 | 1003490 | 18 | 016866 | 013376 |
| 983146 | 986612 | 996534 | 1003465 | 17 | 016853 | 013387 |
| 983160 | 986600 | 996560 | 1003439 | 16 | 016839 | 013390 |
| 983174 | 986588 | 996585 | 1003414 | 15 | 016825 | 013411 |
| 983187 | 986577 | 996610 | 1003389 | 14 | 016812 | 013423 |
| 983201 | 986565 | 996636 | 1003363 | 13 | 016798 | 013432 |
| 983215 | 986553 | 996661 | 1003338 | 12 | 016784 | 013446 |
| 983228 | 986541 | 996686 | 1003313 | 11 | 016771 | 013458 |
| 983242 | 986530 | 996712 | 1003287 | 10 | 016757 | 013469 |
| 983256 | 986518 | 996737 | 1003262 | 9 | 016743 | 013481 |
| 983269 | 986506 | 996762 | 1003237 | 8 | 016730 | 013493 |
| 983283 | 986495 | 996788 | 1003211 | 7 | 016716 | 013504 |
| 983296 | 986483 | 996813 | 1003186 | 6 | 016703 | 013516 |
| 983310 | 986471 | 996838 | 1003161 | 5 | 016689 | 013528 |
| 983324 | 986459 | 996864 | 1003135 | 4 | 016675 | 013540 |
| 983337 | 986448 | 996889 | 1003110 | 3 | 016662 | 013551 |
| 983351 | 986436 | 996914 | 1003085 | 2 | 016648 | 013563 |
| 983364 | 986424 | 996940 | 1003059 | 1 | 016635 | 013575 |
| 983378 | 986412 | 996965 | 1003034 | 0 | 016621 | 013587 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | | |

| 43 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of sine. | com. of s |
|---|---|---|---|---|---|---|---|
| 0 | 983378 | 986412 | 996965 | 1003034 | 60 | 016687 | 013 |
| 1 | 983391 | 986400 | 996990 | 1003009 | 59 | 016608 | 013 |
| 2 | 983405 | 986389 | 997016 | 1002983 | 58 | 016594 | 013 |
| 3 | 983418 | 986377 | 997041 | 1002958 | 57 | 016581 | 013 |
| 4 | 983432 | 986365 | 997066 | 1002933 | 56 | 016567 | 013 |
| 5 | 983445 | 986353 | 997092 | 1002907 | 55 | 016554 | 013 |
| 6 | 983459 | 986341 | 997117 | 1002882 | 54 | 016540 | 013 |
| 7 | 983472 | 986330 | 997142 | 1002857 | 53 | 016527 | 013 |
| 8 | 983486 | 986318 | 997168 | 1002831 | 52 | 016513 | 013 |
| 9 | 983499 | 986306 | 997193 | 1002806 | 51 | 016500 | 013 |
| 10 | 983513 | 986296 | 997218 | 1002781 | 50 | 016486 | 013 |
| 11 | 983526 | 986282 | 997244 | 1002755 | 49 | 016473 | 013 |
| 12 | 983540 | 986270 | 997269 | 1002730 | 48 | 016459 | 013 |
| 13 | 983553 | 986259 | 997294 | 1002705 | 47 | 016446 | 013 |
| 14 | 983567 | 986247 | 997320 | 1002679 | 46 | 016432 | 013 |
| 15 | 983580 | 986235 | 997345 | 1002654 | 45 | 016419 | 013 |
| 16 | 983594 | 986223 | 997370 | 1002629 | 44 | 016405 | 013 |
| 17 | 983607 | 986211 | 997396 | 1002603 | 43 | 016392 | 013 |
| 18 | 983620 | 986199 | 997421 | 1002578 | 42 | 016379 | 013 |
| 19 | 983634 | 986187 | 997446 | 1002553 | 41 | 016365 | 013 |
| 20 | 983647 | 986175 | 997471 | 1002528 | 40 | 016352 | 013 |
| 21 | 983661 | 986163 | 997497 | 1002502 | 39 | 016338 | 013 |
| 22 | 983674 | 986151 | 997522 | 1002477 | 38 | 016325 | 013 |
| 23 | 983687 | 986139 | 997547 | 1002452 | 37 | 016312 | 013 |
| 24 | 983701 | 986128 | 997573 | 1002426 | 36 | 016298 | 013 |
| 25 | 983714 | 986116 | 997598 | 1002401 | 35 | 016285 | 013 |
| 26 | 983727 | 986104 | 997623 | 1002376 | 34 | 016272 | 013 |
| 27 | 983741 | 986092 | 997645 | 1002350 | 33 | 016258 | 013 |
| 28 | 983754 | 986080 | 997674 | 1002325 | 32 | 016245 | 013 |
| 29 | 983767 | 986068 | 997699 | 1002300 | 31 | 016232 | 013 |
| 30 | 983781 | 986056 | 997725 | 1002275 | 30 | 016218 | 013 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | | 46 | |

| Sine. | Sine comple. | Tang. | Tangent comple. | | com ar. of sine | com. ar. of tan. |
|---|---|---|---|---|---|---|
| 983781 | 986056 | 997725 | 1002275 | 30 | 016218 | 013943 |
| 983794 | 986044 | 997750 | 1002249 | 29 | 016205 | 013953 |
| 983807 | 986032 | 997775 | 1002224 | 28 | 016192 | 013967 |
| 983821 | 986020 | 997800 | 1002199 | 27 | 016178 | 003979 |
| 983834 | 986008 | 997826 | 1002173 | 26 | 016165 | 013991 |
| 983847 | 985996 | 997851 | 1002148 | 25 | 016152 | 014003 |
| 983860 | 985984 | 997876 | 1002123 | 24 | 016139 | 014015 |
| 983874 | 985972 | 997902 | 1002097 | 23 | 016125 | 014027 |
| 983887 | 985960 | 997927 | 1002072 | 22 | 016112 | 014039 |
| 983900 | 985948 | 997952 | 1002047 | 21 | 016099 | 014051 |
| 983913 | 985935 | 997977 | 1002022 | 20 | 016686 | 014064 |
| 983927 | 985923 | 998003 | 1001996 | 19 | 016072 | 014076 |
| 983940 | 985911 | 998028 | 1001971 | 18 | 016059 | 014088 |
| 983953 | 985899 | 998053 | 1001946 | 17 | 016046 | 014100 |
| 983966 | 985887 | 998079 | 1001920 | 16 | 016033 | 014112 |
| 983980 | 985875 | 998104 | 1001895 | 15 | 016019 | 014124 |
| 983993 | 985863 | 998129 | 1001870 | 14 | 016006 | 014136 |
| 984006 | 985851 | 998155 | 1001844 | 13 | 015993 | 014148 |
| 984019 | 985839 | 998180 | 1001819 | 12 | 015980 | 014160 |
| 984032 | 985827 | 998205 | 1001794 | 11 | 015967 | 014172 |
| 984045 | 985815 | 998230 | 1001769 | 10 | 015954 | 014184 |
| 984059 | 985802 | 998256 | 1001743 | 9 | 015940 | 014197 |
| 984072 | 985790 | 998281 | 1001718 | 8 | 015927 | 014209 |
| 984085 | 985778 | 998306 | 1001693 | 7 | 015914 | 014221 |
| 984098 | 985768 | 998332 | 1001667 | 6 | 015901 | 014233 |
| 984111 | 985754 | 998357 | 1001642 | 5 | 015888 | 014245 |
| 984124 | 985742 | 998382 | 1001617 | 4 | 015875 | 014257 |
| 984137 | 985729 | 998407 | 1001592 | 3 | 015862 | 014270 |
| 984150 | 985717 | 998432 | 1001566 | 2 | 015849 | 014282 |
| 984164 | 985705 | 998458 | 1001541 | 1 | 015835 | 014294 |
| 984177 | 985693 | 998483 | 1001516 | 0 | 015822 | 014306 |
| Sine comple. | Sine. | Tangent comple. | Tang. | | 46 | |

| 44 | Sine. | Sine compl. | Tang. | Tangent complem. | | com. ar of fine. | com. ar of ta. |
|---|---|---|---|---|---|---|---|
| 0 | 984177 | 985693 | 998483 | 1001516 | 60 | 015822 | 0145 |
| 1 | 984190 | 985681 | 998509 | 1001491 | 59 | 015809 | 0145 |
| 2 | 984203 | 985669 | 998534 | 1001465 | 58 | 015796 | 0145 |
| 3 | 984216 | 985656 | 998559 | 1001440 | 57 | 015783 | 0145 |
| 4 | 984229 | 985644 | 998584 | 1001415 | 56 | 015770 | 0145 |
| 5 | 984242 | 985632 | 998610 | 1001389 | 55 | 015757 | 0145 |
| 6 | 984255 | 985620 | 998635 | 1001364 | 54 | 015744 | 0145 |
| 7 | 984268 | 985607 | 998660 | 1001339 | 53 | 015731 | 0145 |
| 8 | 984281 | 985595 | 998685 | 1001314 | 52 | 015718 | 0145 |
| 9 | 984294 | 985583 | 998711 | 1001288 | 51 | 015705 | 0144 |
| 10 | 984307 | 985571 | 998736 | 1001263 | 50 | 015692 | 0144 |
| 11 | 984320 | 985558 | 998761 | 1001238 | 49 | 015679 | 0144 |
| 12 | 984333 | 985546 | 998787 | 1001212 | 48 | 015666 | 0144 |
| 13 | 984346 | 985534 | 998812 | 1001187 | 47 | 015653 | 0144 |
| 14 | 984359 | 985521 | 998837 | 1001162 | 46 | 015640 | 0144 |
| 15 | 984372 | 985509 | 998862 | 1001137 | 45 | 015627 | 0144 |
| 16 | 984385 | 985497 | 998888 | 1001111 | 44 | 015614 | 0145 |
| 17 | 984398 | 985484 | 998913 | 1001086 | 43 | 015601 | 0145 |
| 18 | 984411 | 985472 | 998938 | 1001061 | 42 | 015588 | 0145 |
| 19 | 984424 | 985460 | 998963 | 1001036 | 41 | 015575 | 0145 |
| 20 | 984437 | 985447 | 998989 | 1001010 | 40 | 015562 | 0145 |
| 21 | 984450 | 985435 | 999014 | 0000905 | 39 | 015549 | 01456 |
| 22 | 984463 | 985423 | 999039 | 1000960 | 38 | 015536 | 01457 |
| 23 | 984476 | 985410 | 999065 | 1000934 | 37 | 015523 | 01458 |
| 24 | 984488 | 985398 | 999090 | 1000909 | 36 | 015511 | 01460 |
| 25 | 984501 | 985386 | 999115 | 1000884 | 35 | 015498 | 01461 |
| 26 | 984514 | 985373 | 999140 | 1000859 | 34 | 015485 | 01462 |
| 27 | 984527 | 985361 | 999166 | 1000833 | 33 | 015472 | 01463 |
| 28 | 984540 | 985349 | 999191 | 1000808 | 32 | 015459 | 01465 |
| 29 | 984556 | 985336 | 999216 | 1000783 | 31 | 015446 | 01466 |
| 30 | 984566 | 985324 | 999241 | 1000758 | 30 | 015433 | 01467 |
| | Sine compl. | Sine. | Tangent complem. | Tang. | 45 | | |

| Sine. | Sine comple. | Tang. | Tangens complem. | | com. æ. of sine | com. æ of sin. cō |
|---|---|---|---|---|---|---|
| 84566 | 985324 | 999241 | 1000758 | 30 | 015433 | 014675 |
| 84579 | 985311 | 999267 | 1000732 | 29 | 015420 | 014688 |
| 84591 | 985299 | 999292 | 1000707 | 28 | 015408 | 014700 |
| 84604 | 985286 | 999317 | 1000682 | 27 | 015395 | 014713 |
| 84617 | 985274 | 999343 | 1000656 | 26 | 015382 | 014725 |
| 84630 | 985262 | 999368 | 1000631 | 25 | 015369 | 014737 |
| 84643 | 985249 | 999393 | 1000606 | 24 | 015356 | 014750 |
| 84655 | 985237 | 999418 | 1000581 | 23 | 015344 | 014762 |
| 84668 | 985224 | 999444 | 1000555 | 22 | 015331 | 014775 |
| 84681 | 985212 | 999469 | 1000530 | 21 | 015318 | 014787 |
| 84694 | 985199 | 999494 | 1000505 | 20 | 015305 | 014800 |
| 84707 | 985187 | 999519 | 1000480 | 19 | 015292 | 014812 |
| 84719 | 985174 | 999545 | 1000454 | 18 | 015280 | 014825 |
| 84732 | 985162 | 999570 | 1000429 | 17 | 015267 | 014837 |
| 84745 | 985149 | 999595 | 1000404 | 16 | 015254 | 014850 |
| 84758 | 985137 | 999621 | 1000349 | 15 | 015241 | 014862 |
| 84770 | 985124 | 999646 | 1000353 | 14 | 015229 | 014875 |
| 84783 | 985112 | 999671 | 1000328 | 13 | 015216 | 014887 |
| 84796 | 985099 | 999696 | 1000303 | 12 | 015203 | 014900 |
| 84809 | 985087 | 999722 | 1000277 | 11 | 015190 | 014912 |
| 84821 | 985074 | 999747 | 1000252 | 10 | 015178 | 014925 |
| 84834 | 985061 | 999772 | 1000227 | 9 | 015165 | 014938 |
| 84847 | 985089 | 999797 | 1000202 | 8 | 015152 | 014950 |
| 84859 | 985030 | 999823 | 1000176 | 7 | 015140 | 014963 |
| 84872 | 985024 | 999848 | 1000151 | 6 | 015127 | 014975 |
| 84885 | 985011 | 999873 | 1000126 | 5 | 015114 | 014988 |
| 84897 | 984998 | 999898 | 1000101 | 4 | 015102 | 015001 |
| 84910 | 984986 | 999924 | 1000075 | 3 | 015089 | 015013 |
| 84923 | 984973 | 999949 | 1000050 | 2 | 015076 | 015026 |
| 84935 | 984961 | 999974 | 1000025 | 1 | 015064 | 015038 |
| 84948 | 984948 | 100000 | 1000000 | 0 | 015051 | 015051 |
| Sine comple. | Sine. | Tangent complem | Tang. | | 45 | |

# CHILIAD

OR THE

LOGARITHMS

OF

ABSOLUTE NUMBERS

from a Unite to

1000.

| Logar. | Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. |
|---|---|---|---|---|---|---|
| 000000 | 0034 | 153147 | 0067 | 182607 | 0100 | 200000 |
| 030103 | 0035 | 154406 | 0068 | 183250 | 0101 | 200432 |
| 047712 | 0036 | 155630 | 0069 | 183884 | 0102 | 200860 |
| 060206 | 0037 | 156820 | 0070 | 184509 | 0103 | 201283 |
| 069897 | 0038 | 157978 | 0071 | 185125 | 0104 | 201703 |
| 077815 | 0039 | 159106 | 0072 | 185733 | 0105 | 202118 |
| 084509 | 0040 | 160206 | 0073 | 186332 | 0106 | 202530 |
| 090309 | 0041 | 161278 | 0074 | 186923 | 0107 | 202938 |
| 095424 | 0042 | 162324 | 0075 | 187506 | 0108 | 203342 |
| 100000 | 0043 | 163346 | 0076 | 188081 | 0109 | 203742 |
| 104139 | 0044 | 164345 | 0077 | 188649 | 0110 | 204139 |
| 107918 | 0045 | 165321 | 0078 | 189209 | 0111 | 204532 |
| 111394 | 0046 | 166275 | 0079 | 189762 | 0112 | 204921 |
| 114612 | 0047 | 167209 | 0080 | 190309 | 0113 | 205307 |
| 117609 | 0048 | 168124 | 0081 | 190848 | 0114 | 205690 |
| 120412 | 0049 | 169019 | 0082 | 191381 | 0115 | 206069 |
| 123041 | 0050 | 169897 | 0083 | 191907 | 0116 | 206445 |
| 125527 | 0051 | 170757 | 0084 | 192427 | 0117 | 206818 |
| 127875 | 0052 | 171600 | 0085 | 192941 | 0118 | 207188 |
| 130103 | 0053 | 172427 | 0086 | 193449 | 0119 | 207554 |
| 132221 | 0054 | 173239 | 0087 | 193951 | 0120 | 207918 |
| 134242 | 0055 | 174036 | 0088 | 194448 | 0121 | 208278 |
| 136172 | 0056 | 174818 | 0089 | 194939 | 0122 | 208635 |
| 138021 | 0057 | 175587 | 0090 | 195424 | 0123 | 208990 |
| 139794 | 0058 | 176342 | 0091 | 195904 | 0124 | 209342 |
| 141497 | 0059 | 177085 | 0092 | 196378 | 0125 | 209691 |
| 143136 | 0060 | 177815 | 0093 | 196848 | 0126 | 210037 |
| 144715 | 0061 | 178532 | 0094 | 197312 | 0127 | 210380 |
| 146239 | 0062 | 179239 | 0095 | 197772 | 0128 | 210720 |
| 147712 | 0063 | 179934 | 0096 | 198227 | 0129 | 211058 |
| 149136 | 0064 | 180618 | 0097 | 198677 | 0130 | 211394 |
| 150515 | 0065 | 181291 | 0098 | 199122 | 0131 | 211727 |
| 151851 | 0066 | 181954 | 0099 | 199562 | 0132 | 212057 |

| Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. | Nũ. | Lo |
|---|---|---|---|---|---|---|---|
| 0133 | 212385 | 0166 | 222010 | 0199 | 229885 | 0232 | 23 |
| 0134 | 212710 | 0167 | 222271 | 0200 | 230103 | 0233 | 23 |
| 0135 | 213033 | 0168 | 222530 | 0201 | 230319 | 0234 | 23 |
| 0136 | 213353 | 0169 | 222788 | 0202 | 230535 | 0235 | 23 |
| 0137 | 213672 | 0170 | 223044 | 0203 | 230749 | 0236 | 23 |
| 0138 | 213987 | 0171 | 223299 | 0204 | 230963 | 0237 | 23 |
| 0139 | 214301 | 0172 | 223552 | 0205 | 231175 | 0238 | 23 |
| 0140 | 214612 | 0173 | 223804 | 0206 | 231386 | 0239 | 23 |
| 0141 | 214921 | 0174 | 224054 | 0207 | 231597 | 0240 | 23 |
| 0142 | 215228 | 0175 | 224303 | 0208 | 231806 | 0241 | 23 |
| 0143 | 215533 | 0176 | 224551 | 0209 | 232014 | 0242 | 23 |
| 0144 | 215836 | 0177 | 224797 | 0210 | 232221 | 0243 | 23 |
| 0145 | 216136 | 0178 | 225042 | 0211 | 232428 | 0244 | 23 |
| 0146 | 216435 | 0179 | 225285 | 0212 | 232633 | 0245 | 23 |
| 0147 | 216731 | 0180 | 225527 | 0213 | 232837 | 0246 | 23 |
| 0148 | 217026 | 0181 | 225767 | 0214 | 233041 | 0247 | 23 |
| 0149 | 217318 | 0182 | 226007 | 0215 | 233243 | 0248 | 23 |
| 0150 | 217609 | 0183 | 226245 | 0216 | 233445 | 0249 | 23 |
| 0151 | 217897 | 0184 | 226481 | 0217 | 233645 | 0250 | 23 |
| 0152 | 218184 | 0185 | 226717 | 0218 | 233845 | 0251 | 23 |
| 0153 | 218469 | 0186 | 226951 | 0219 | 234044 | 0252 | 24 |
| 0154 | 218752 | 0187 | 227184 | 0220 | 234242 | 0253 | 24 |
| 0155 | 219033 | 0188 | 227415 | 0221 | 234439 | 0254 | 24 |
| 0156 | 219312 | 0189 | 227646 | 0222 | 234635 | 0255 | 24 |
| 0157 | 219589 | 0190 | 227875 | 0223 | 234830 | 0256 | 24 |
| 0158 | 219865 | 0191 | 228103 | 0224 | 235024 | 0257 | 24 |
| 0159 | 220139 | 0192 | 228330 | 0225 | 235218 | 0258 | 24 |
| 0160 | 220412 | 0193 | 228555 | 0226 | 235410 | 0259 | 24 |
| 0161 | 220682 | 0194 | 228780 | 0227 | 235602 | 0260 | 24 |
| 0162 | 220951 | 0195 | 229003 | 0228 | 235793 | 0261 | 24 |
| 0163 | 221218 | 0196 | 229225 | 0229 | 235983 | 0262 | 24 |
| 0164 | 221484 | 0197 | 229446 | 0230 | 236172 | 0263 | 24 |
| 0165 | 221748 | 0198 | 229666 | 0231 | 236361 | 0264 | 24 |

PATENT OFFICE LIBRARY

| Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. |
|---|---|---|---|---|---|---|---|
| 65 | 242324 | 0298 | 247421 | 0331 | 251982 | 0364 | 256110 |
| 66 | 242488 | 0299 | 247565 | 0332 | 252113 | 0365 | 256229 |
| 67 | 242651 | 0300 | 247712 | 0333 | 252244 | 0366 | 256348 |
| 68 | 242813 | 0301 | 247856 | 0334 | 252374 | 0367 | 256466 |
| 69 | 242975 | 0302 | 248000 | 0335 | 252504 | 0368 | 256584 |
| 70 | 243136 | 0303 | 248144 | 0336 | 252633 | 0369 | 256702 |
| 71 | 243296 | 0304 | 248287 | 0337 | 252762 | 0370 | 256820 |
| 72 | 243456 | 0305 | 248429 | 0338 | 252891 | 0371 | 256937 |
| 73 | 243616 | 0306 | 248572 | 0339 | 253019 | 0372 | 257054 |
| 74 | 243775 | 0307 | 248713 | 0340 | 253147 | 0373 | 257170 |
| 75 | 243933 | 0308 | 248855 | 0341 | 253275 | 0374 | 257287 |
| 76 | 244090 | 0309 | 248995 | 0342 | 253402 | 0375 | 257403 |
| 77 | 244247 | 0310 | 249136 | 0343 | 253529 | 0376 | 257518 |
| 78 | 244404 | 0311 | 249276 | 0344 | 253655 | 0377 | 257634 |
| 79 | 244560 | 0312 | 249415 | 0345 | 253781 | 0378 | 257749 |
| 80 | 244715 | 0313 | 249554 | 0346 | 253907 | 0379 | 257863 |
| 81 | 244870 | 0314 | 249692 | 0347 | 254032 | 0380 | 257978 |
| 82 | 245024 | 0315 | 249831 | 0348 | 254157 | 0381 | 258092 |
| 83 | 245179 | 0316 | 249968 | 0349 | 254282 | 0382 | 258206 |
| 84 | 245331 | 0317 | 250105 | 0350 | 254406 | 0383 | 258319 |
| 85 | 245484 | 0318 | 250242 | 0351 | 254530 | 0384 | 258433 |
| 86 | 245636 | 0319 | 250379 | 0352 | 254654 | 0385 | 258546 |
| 87 | 245788 | 0320 | 250515 | 0353 | 254777 | 0386 | 258658 |
| 88 | 245939 | 0321 | 250650 | 0354 | 254900 | 0387 | 258771 |
| 89 | 246089 | 0322 | 250785 | 0355 | 255022 | 0388 | 258883 |
| 90 | 246239 | 0323 | 250920 | 0356 | 255145 | 0389 | 258994 |
| 91 | 246389 | 0324 | 251054 | 0357 | 255266 | 0390 | 259106 |
| 92 | 246538 | 0325 | 251188 | 0358 | 255388 | 0391 | 259217 |
| 93 | 246686 | 0326 | 251321 | 0359 | 255509 | 0992 | 259328 |
| 94 | 246834 | 0327 | 251454 | 0360 | 255630 | 0393 | 259439 |
| 95 | 246982 | 0328 | 251587 | 0361 | 255750 | 0394 | 259549 |
| 96 | 247129 | 0329 | 251719 | 0362 | 255870 | 0395 | 259659 |
| 97 | 247275 | 0330 | 251851 | 0363 | 255990 | 0396 | 259769 |

| Nū. | Logar. | Nū. | Logar. | Nū. | Logar. | Nū. | Log |
|---|---|---|---|---|---|---|---|
| 0397 | 259879 | 0430 | 263346 | 0463 | 266558 | 0496 | 269 |
| 0398 | 259988 | 0431 | 263447 | 0464 | 266651 | 0497 | 269 |
| 0396 | 260097 | 0432 | 263548 | 0465 | 266745 | 0498 | 269 |
| 0400 | 260206 | 0433 | 263648 | 0466 | 266838 | 0499 | 269 |
| 0401 | 260314 | 0434 | 263748 | 0467 | 266931 | 0500 | 269 |
| 0402 | 260422 | 0435 | 263848 | 0468 | 267024 | 0501 | 269 |
| 0403 | 260530 | 0436 | 263948 | 0469 | 267117 | 0502 | 270 |
| 0404 | 260638 | 0437 | 264048 | 0470 | 267209 | 0503 | 270 |
| 0405 | 260745 | 0438 | 264147 | 0471 | 267302 | 0504 | 270 |
| 0406 | 260852 | 0439 | 264246 | 0472 | 267394 | 0505 | 270 |
| 0407 | 260959 | 0440 | 264345 | 0473 | 267486 | 0506 | 270 |
| 0408 | 261006 | 0441 | 264443 | 0474 | 267577 | 0507 | 270 |
| 0409 | 261172 | 0442 | 264542 | 0475 | 067669 | 0508 | 270 |
| 0410 | 261278 | 0443 | 264640 | 0476 | 267760 | 0509 | 270 |
| 0411 | 261384 | 0444 | 264738 | 0477 | 267851 | 0510 | 270 |
| 0412 | 261489 | 0445 | 264836 | 0478 | 277942 | 0511 | 270 |
| 0413 | 261595 | 0426 | 264933 | 0479 | 268033 | 0512 | 270 |
| 0414 | 261700 | 0447 | 265031 | 0480 | 268124 | 0513 | 271 |
| 0415 | 261804 | 0448 | 265127 | 0481 | 268214 | 0514 | 271 |
| 0416 | 261909 | 0449 | 265024 | 0482 | 268304 | 0515 | 271 |
| 0417 | 262013 | 0450 | 265321 | 0483 | 268394 | 0516 | 271 |
| 0418 | 262117 | 0451 | 265417 | 0484 | 268484 | 0517 | 271 |
| 0419 | 262221 | 0452 | 265513 | 0485 | 268574 | 0518 | 271 |
| 0420 | 262324 | 0453 | 265609 | 0486 | 268663 | 0519 | 271 |
| 0421 | 262428 | 0454 | 265705 | 0487 | 268752 | 0520 | 271 |
| 0422 | 262531 | 0455 | 265801 | 0488 | 268841 | 0521 | 271 |
| 0423 | 262634 | 0456 | 265896 | 0489 | 268930 | 0522 | 271 |
| 0424 | 262736 | 0457 | 265991 | 0490 | 269019 | 0523 | 271 |
| 0425 | 262838 | 0458 | 266086 | 0491 | 269108 | 0524 | 271 |
| 0426 | 262940 | 0459 | 266181 | 0492 | 269196 | 0525 | 271 |
| 0427 | 263042 | 0460 | 266275 | 0493 | 269284 | 0526 | 271 |
| 0428 | 263144 | 0461 | 266370 | 0494 | 269372 | 0527 | 271 |
| 0429 | 263245 | 0462 | 266464 | 0495 | 269460 | 0528 | 271 |

| Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. |
|---|---|---|---|---|---|---|---|
| 0562 | 274973 | 0595 | 277451 | 0628 | 279795 | | 272345 |
| 0563 | 275050 | 0596 | 277524 | 0629 | 279865 | | 272427 |
| 0564 | 275127 | 0597 | 277597 | 0630 | 279934 | | 272509 |
| 0565 | 275204 | 0598 | 277670 | 0631 | 280002 | | 272591 |
| 0566 | 275281 | 0599 | 277742 | 0632 | 280071 | | 272672 |
| 0567 | 275358 | 0600 | 277815 | 0633 | 280140 | | 272754 |
| 0568 | 275434 | 0601 | 277887 | 0634 | 280208 | | 272835 |
| 0569 | 275511 | 0602 | 277959 | 0635 | 280277 | | 272916 |
| 0570 | 275587 | 0603 | 278031 | 0636 | 280345 | | 272997 |
| 0571 | 275663 | 0604 | 278103 | 0637 | 280413 | | 273078 |
| 0572 | 275739 | 0605 | 278175 | 0638 | 280482 | | 273158 |
| 0573 | 275815 | 0606 | 278247 | 0639 | 280550 | | 273239 |
| 0574 | 275891 | 0607 | 278318 | 0640 | 280618 | | 273319 |
| 0575 | 275966 | 0608 | 278390 | 0641 | 280685 | | 273399 |
| 0576 | 276042 | 0609 | 278461 | 0642 | 280753 | | 273479 |
| 0577 | 276117 | 0610 | 278532 | 0643 | 280821 | | 273559 |
| 0578 | 276192 | 0611 | 278604 | 0644 | 280888 | | 273639 |
| 0579 | 276267 | 0612 | 278675 | 0645 | 280955 | | 273719 |
| 0580 | 276341 | 0613 | 278746 | 0646 | 281023 | | 273798 |
| 0581 | 276417 | 0614 | 278816 | 0647 | 281090 | | 273878 |
| 0582 | 276492 | 0615 | 278887 | 0648 | 281157 | | 273957 |
| 0583 | 276566 | 0616 | 278958 | 0649 | 281224 | | 274036 |
| 0584 | 276641 | 0617 | 279028 | 0650 | 281291 | | 274115 |
| 0585 | 276715 | 0618 | 279098 | 0651 | 281358 | | 274193 |
| 0586 | 276789 | 0619 | 279169 | 0652 | 281424 | | 274272 |
| 0587 | 276863 | 0620 | 279239 | 0653 | 281491 | | 274350 |
| 0588 | 276937 | 0621 | 279309 | 0654 | 281557 | | 274429 |
| 0589 | 277011 | 0622 | 279379 | 0655 | 281624 | | 274507 |
| 0590 | 277085 | 0623 | 279448 | 0656 | 281690 | | 274585 |
| 0591 | 277158 | 0624 | 279518 | 0657 | 281756 | | 274663 |
| 0592 | 277232 | 0625 | 279588 | 0658 | 281822 | | 274741 |
| 0593 | 277305 | 0626 | 279657 | 0659 | 281888 | | 274818 |
| 0594 | 277378 | 0627 | 279726 | 0660 | 281954 | | 274896 |

| Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. | Nũ. | Log |
|---|---|---|---|---|---|---|---|
| 0661 | 282020 | 0694 | 284135 | 0727 | 286153 | 0760 | 288 |
| 0662 | 282085 | 0695 | 284198 | 0728 | 286213 | 0761 | 288 |
| 0663 | 282151 | 0696 | 284260 | 0729 | 286272 | 0762 | 288 |
| 0664 | 282216 | 0697 | 284323 | 0730 | 286332 | 0763 | 288 |
| 0665 | 282282 | 0698 | 284385 | 0731 | 286391 | 0764 | 288 |
| 0666 | 282342 | 0699 | 284447 | 0732 | 286451 | 0765 | 288 |
| 0667 | 282412 | 0700 | 284509 | 0733 | 286510 | 0766 | 288 |
| 0668 | 282477 | 0701 | 284571 | 0734 | 286569 | 0767 | 288 |
| 0669 | 282542 | 0702 | 284633 | 0735 | 286628 | 0768 | 288 |
| 0670 | 282607 | 0703 | 284695 | 0736 | 286687 | 0769 | 288 |
| 0671 | 282672 | 0704 | 284757 | 0737 | 286746 | 0770 | 288 |
| 0672 | 282736 | 0705 | 284818 | 0738 | 286805 | 0771 | 288 |
| 0673 | 282801 | 0706 | 284880 | 0739 | 286864 | 0772 | 288 |
| 0674 | 282865 | 0707 | 284941 | 0740 | 286923 | 0773 | 288 |
| 0675 | 282930 | 0708 | 285003 | 0741 | 286981 | 0774 | 288 |
| 0676 | 282994 | 0709 | 285064 | 0742 | 287040 | 0775 | 288 |
| 0677 | 283058 | 0710 | 285125 | 0743 | 287098 | 0776 | 288 |
| 0678 | 283121 | 0711 | 285186 | 0744 | 287157 | 0777 | 289 |
| 0679 | 283186 | 0712 | 285248 | 0745 | 287215 | 0778 | 289 |
| 0680 | 283250 | 0713 | 285308 | 0746 | 287273 | 0779 | 289 |
| 0681 | 283314 | 0714 | 285369 | 0747 | 287332 | 0780 | 289 |
| 0682 | 283378 | 0715 | 285430 | 0748 | 287390 | 0781 | 289 |
| 0683 | 283442 | 0716 | 285491 | 0749 | 287448 | 0782 | 289 |
| 0684 | 283505 | 0717 | 285551 | 0750 | 287506 | 0783 | 289 |
| 0685 | 283569 | 0718 | 285612 | 0751 | 287563 | 0784 | 289 |
| 0686 | 283632 | 0719 | 285672 | 0752 | 287621 | 0785 | 289 |
| 0687 | 283695 | 0720 | 285733 | 0753 | 287679 | 0786 | 289 |
| 0688 | 283758 | 0721 | 285793 | 0754 | 287737 | 0787 | 289 |
| 0689 | 283821 | 0722 | 285853 | 0755 | 287794 | 0788 | 289 |
| 0690 | 283884 | 0723 | 285913 | 0756 | 287852 | 0789 | 289 |
| 0691 | 283947 | 0724 | 285973 | 0757 | 287909 | 0790 | 289 |
| 0692 | 284010 | 0725 | 286033 | 0758 | 287966 | 0791 | 289 |
| 0693 | 284073 | 0726 | 286093 | 0759 | 288024 | 0792 | 289 |

| Nū. | Logar. | Nū. | Logar. | Nū. | Logar. | Nū. | Logar. |
|---|---|---|---|---|---|---|---|
| 93 | 289927 | 0826 | 291698 | 0859 | 293399 | 0892 | 295036 |
| 94 | 289982 | 0827 | 291750 | 0860 | 293449 | 0893 | 295085 |
| 95 | 290036 | 0828 | 291803 | 0861 | 293500 | 0894 | 295133 |
| 96 | 290091 | 0829 | 291855 | 0862 | 293550 | 0895 | 295182 |
| 97 | 290145 | 0830 | 291907 | 0863 | 293601 | 0896 | 295230 |
| 98 | 290200 | 0831 | 291960 | 0864 | 293651 | 0897 | 295279 |
| 99 | 290254 | 0832 | 292012 | 0865 | 293701 | 0898 | 295327 |
| 00 | 290309 | 0833 | 292064 | 0866 | 293751 | 0899 | 295375 |
| 01 | 290363 | 0834 | 292116 | 0867 | 293801 | 0900 | 295424 |
| 02 | 290417 | 0835 | 292168 | 0868 | 293851 | 0901 | 295472 |
| 03 | 290471 | 0836 | 292220 | 0869 | 293901 | 0902 | 295520 |
| 04 | 290525 | 0837 | 292272 | 0870 | 293951 | 0903 | 295568 |
| 05 | 290579 | 0838 | 292324 | 0871 | 294001 | 0904 | 295616 |
| 06 | 290633 | 0839 | 292376 | 0872 | 294051 | 0905 | 295664 |
| 07 | 290687 | 0840 | 292427 | 0873 | 294101 | 0906 | 295712 |
| 08 | 290741 | 0841 | 292479 | 0874 | 294151 | 0907 | 295760 |
| 09 | 290794 | 0842 | 292531 | 0875 | 294200 | 0908 | 295808 |
| 10 | 290848 | 0843 | 292582 | 0876 | 294250 | 0909 | 295856 |
| 11 | 290902 | 0844 | 292634 | 0877 | 294299 | 0910 | 295904 |
| 12 | 290955 | 0845 | 292685 | 0878 | 294349 | 0911 | 295951 |
| 13 | 291009 | 0846 | 292737 | 0879 | 294398 | 0912 | 295999 |
| 14 | 291062 | 0847 | 292788 | 0880 | 294448 | 0913 | 296047 |
| 15 | 291115 | 0848 | 292839 | 0881 | 294497 | 0914 | 296094 |
| 16 | 291169 | 0849 | 292890 | 0882 | 294546 | 0915 | 296142 |
| 17 | 291222 | 0850 | 292941 | 0883 | 294596 | 0916 | 296189 |
| 18 | 291275 | 0851 | 292992 | 0884 | 294645 | 0917 | 296236 |
| 19 | 291328 | 0852 | 293043 | 0885 | 294694 | 0918 | 296284 |
| 20 | 291381 | 0853 | 293094 | 0886 | 294743 | 0919 | 296331 |
| 21 | 291434 | 0854 | 293145 | 0887 | 294792 | 0920 | 296378 |
| 22 | 291487 | 0855 | 293196 | 0888 | 294841 | 0921 | 296425 |
| 23 | 291539 | 0856 | 293247 | 0889 | 294890 | 0922 | 296473 |
| 24 | 291592 | 0857 | 293298 | 0890 | 294939 | 0923 | 296520 |
| 25 | 291645 | 0858 | 293348 | 0891 | 294987 | 0924 | 296567 |

| Nũ. | Logar. | Nũ. | Logar. | Nũ. | Logar. | Nũ. | Lo |
|---|---|---|---|---|---|---|---|
| 0925 | 296614 | 0944 | 297497 | 0963 | 298362 | 0982 | 299 |
| 0926 | 296661 | 0945 | 297543 | 0964 | 298407 | 0983 | 299 |
| 0927 | 296707 | 0946 | 297589 | 0965 | 298452 | 0984 | 299 |
| 0928 | 296754 | 0947 | 297635 | 0966 | 298497 | 0985 | 299 |
| 0929 | 296801 | 0948 | 297680 | 0967 | 298542 | 0986 | 299 |
| 0930 | 296848 | 0949 | 297726 | 0968 | 298587 | 0987 | 299 |
| 0931 | 296894 | 0950 | 297772 | 0969 | 298632 | 0988 | 299 |
| 0932 | 296941 | 0951 | 297818 | 0970 | 298677 | 0989 | 299 |
| 0933 | 296988 | 0952 | 297863 | 0971 | 298721 | 0990 | 299 |
| 0934 | 297034 | 0953 | 297909 | 0972 | 298766 | 0991 | 299 |
| 0935 | 297081 | 0954 | 297954 | 0973 | 298811 | 0992 | 299 |
| 0936 | 297127 | 0955 | 298000 | 0974 | 298855 | 0993 | 299 |
| 0937 | 297173 | 0956 | 298045 | 0975 | 298900 | 0994 | 299 |
| 0938 | 297220 | 0957 | 298091 | 0976 | 298944 | 0995 | 299 |
| 0939 | 297266 | 0958 | 298136 | 0977 | 298989 | 0996 | 299 |
| 0940 | 297312 | 0959 | 298181 | 0978 | 299033 | 0997 | 299 |
| 0941 | 297358 | 0960 | 298227 | 0979 | 299078 | 0998 | 299 |
| 0942 | 297405 | 0961 | 298272 | 0980 | 299122 | 0999 | 299 |
| 0943 | 297451 | 0962 | 298317 | 0981 | 299166 | 1000 | 300 |

FINIS.

# CERTAIN NECESSARY TABLES, USEFUL IN THE ART OF NAVIGATION.

# A Table of Meridional parts.

| Latit. D. | M. | D. parts | lat. D. | D. parts | lat. D. | D. parts | lat. D. | D. parts |
|---|---|---|---|---|---|---|---|---|
| 0 | 00 | 0 000 | 5 | 5 006 | 10 | 10 051 | 15 | 15 174 |
| | 10 | 0 167 | | 5 174 | | 10 220 | | 15 347 |
| | 20 | 0 333 | | 5 341 | | 10 390 | | 15 519 |
| | 30 | 0 500 | | 5 508 | | 10 559 | | 15 692 |
| | 40 | 0 667 | | 5 676 | | 10 729 | | 15 865 |
| | 50 | 0 833 | | 5 843 | | 10 898 | | 16 038 |
| 1 | 00 | 1 000 | 6 | 6 011 | 11 | 11 068 | 16 | 16 212 |
| | 10 | 1 166 | | 6 179 | | 11 238 | | 16 385 |
| | 20 | 1 333 | | 6 346 | | 11 408 | | 16 559 |
| | 30 | 1 500 | | 6 514 | | 11 578 | | 16 733 |
| | 40 | 1 667 | | 6 682 | | 11 748 | | 16 906 |
| | 50 | 1 833 | | 6 849 | | 11 918 | | 17 080 |
| 2 | 00 | 2 000 | 7 | 7 017 | 12 | 12 089 | 17 | 17 255 |
| | 10 | 2 167 | | 7 186 | | 12 259 | | 17 429 |
| | 20 | 2 334 | | 7 353 | | 12 429 | | 17 604 |
| | 30 | 2 501 | | 7 521 | | 12 600 | | 17 778 |
| | 40 | 2 668 | | 7 690 | | 12 771 | | 17 953 |
| | 50 | 2 834 | | 7 858 | | 12 942 | | 18 128 |
| 3 | 00 | 3 001 | 8 | 8 026 | 13 | 13 113 | 18 | 18 303 |
| | 10 | 3 169 | | 8 195 | | 13 284 | | 18 478 |
| | 20 | 3 335 | | 8 363 | | 13 455 | | 18 654 |
| | 30 | 3 502 | | 8 531 | | 13 627 | | 18 830 |
| | 40 | 3 669 | | 8 700 | | 13 798 | | 19 005 |
| | 50 | 3 836 | | 8 868 | | 13 969 | | 19 181 |
| 4 | 00 | 4 003 | 9 | 9 037 | 14 | 14 141 | 19 | 19 358 |
| | 10 | 4 171 | | 9 206 | | 14 313 | | 19 535 |
| | 20 | 4 337 | | 9 375 | | 14 485 | | 19 710 |
| | 30 | 4 505 | | 9 544 | | 14 657 | | 19 887 |
| | 40 | 4 672 | | 9 713 | | 14 829 | | 20 065 |
| | 50 | 4 839 | | 9 882 | | 15 001 | | 20 241 |
| 5 | 00 | 5 006 | 10 | 10 051 | 15 | 15 174 | 20 | 20 415 |

# A Table of Meridional parts,

| Latit. | | | Lat | | Lat | | Lat | |
|---|---|---|---|---|---|---|---|---|
| D. | M. | D. parts | D. | D. parts | D. | D. parts | D. | D. parts |
| 20 | 00 | 20 419 | 25 | 25 833 | 30 | 31 472 | 35 | 37 404 |
| | 10 | 20 596 | | 26 017 | | 31 664 | | 37 607 |
| | 20 | 20 774 | | 26 200 | | 31 857 | | 37 811 |
| | 30 | 20 952 | | 26 386 | | 32 051 | | 38 016 |
| | 40 | 21 130 | | 26 570 | | 32 244 | | 38 221 |
| | 50 | 21 308 | | 26 755 | | 32 438 | | 38 426 |
| 21 | 00 | 21 486 | 26 | 26 941 | 31 | 32 633 | 36 | 38 632 |
| | 10 | 21 665 | | 27 126 | | 32 827 | | 38 838 |
| | 20 | 21 844 | | 27 312 | | 33 022 | | 39 044 |
| | 30 | 22 023 | | 27 498 | | 33 218 | | 39 252 |
| | 40 | 22 202 | | 27 685 | | 33 413 | | 39 460 |
| | 50 | 22 381 | | 27 871 | | 33 609 | | 39 668 |
| 22 | 00 | 22 561 | 27 | 28 058 | 32 | 33 805 | 37 | 39 876 |
| | 10 | 22 741 | | 28 245 | | 34 002 | | 40 085 |
| | 20 | 22 921 | | 28 432 | | 34 199 | | 40 294 |
| | 30 | 23 101 | | 28 620 | | 34 397 | | 40 504 |
| | 40 | 23 282 | | 28 809 | | 34 595 | | 40 714 |
| | 50 | 23 462 | | 28 997 | | 34 792 | | 40 925 |
| 23 | 00 | 23 643 | 28 | 29 185 | 33 | 34 991 | 38 | 41 136 |
| | 10 | 23 824 | | 29 374 | | 35 190 | | 41 348 |
| | 20 | 24 006 | | 29 563 | | 35 389 | | 41 560 |
| | 30 | 24 188 | | 29 753 | | 35 589 | | 41 773 |
| | 40 | 24 369 | | 29 943 | | 35 789 | | 41 986 |
| | 50 | 24 551 | | 30 133 | | 35 990 | | 42 200 |
| 24 | 00 | 24 734 | 29 | 30 323 | 34 | 36 190 | 39 | 42 414 |
| | 10 | 24 916 | | 30 514 | | 36 391 | | 42 629 |
| | 20 | 25 099 | | 30 705 | | 36 593 | | 42 844 |
| | 30 | 25 282 | | 30 896 | | 36 795 | | 43 060 |
| | 40 | 25 465 | | 31 088 | | 36 997 | | 43 276 |
| | 50 | 25 648 | | 31 279 | | 37 200 | | 43 493 |
| 25 | 00 | 25 833 | 30 | 31 472 | 35 | 37 404 | 40 | 43 710 |

| Latit. | | | lat | | lat | | lat | |
|---|---|---|---|---|---|---|---|---|
| D. | M. | D. parts | D. | D. parts | D. | D. parts | D. | D. parts |
| 40 | 00 | 43 710 | 45 | 50 497 | 50 | 57 905 | 55 | 66 129 |
| | 10 | 43 928 | | 50 733 | | 58 165 | | 66 420 |
| | 20 | 44 146 | | 50 970 | | 58 425 | | 66 712 |
| | 30 | 44 365 | | 51 207 | | 58 687 | | 67 006 |
| | 40 | 44 584 | | 51 445 | | 58 949 | | 67 301 |
| | 50 | 44 804 | | 51 684 | | 59 212 | | 67 597 |
| 41 | 00 | 45 025 | 46 | 51 924 | 51 | 59 477 | 56 | 67 894 |
| | 10 | 45 246 | | 52 164 | | 59 743 | | 68 193 |
| | 20 | 45 467 | | 52 405 | | 60 008 | | 68 493 |
| | 30 | 45 689 | | 52 647 | | 60 276 | | 68 794 |
| | 40 | 45 912 | | 52 889 | | 60 544 | | 69 097 |
| | 50 | 46 136 | | 53 132 | | 60 813 | | 69 401 |
| 42 | 00 | 46 360 | 47 | 53 376 | 52 | 61 083 | 57 | 69 706 |
| | 10 | 46 585 | | 53 621 | | 61 354 | | 70 013 |
| | 20 | 46 810 | | 53 867 | | 61 626 | | 70 321 |
| | 30 | 47 036 | | 54 113 | | 61 900 | | 70 630 |
| | 40 | 47 262 | | 54 360 | | 62 174 | | 70 941 |
| | 50 | 47 489 | | 54 608 | | 62 449 | | 71 253 |
| 43 | 00 | 47 717 | 48 | 54 856 | 53 | 62 726 | 58 | 71 567 |
| | 10 | 47 945 | | 55 106 | | 63 004 | | 71 883 |
| | 20 | 48 174 | | 55 356 | | 63 282 | | 72 200 |
| | 30 | 48 404 | | 55 607 | | 63 562 | | 72 517 |
| | 40 | 48 634 | | 55 859 | | 63 842 | | 72 837 |
| | 50 | 48 864 | | 56 112 | | 64 124 | | 73 158 |
| 44 | 00 | 49 095 | 49 | 56 365 | 54 | 64 407 | 59 | 73 481 |
| | 10 | 49 327 | | 56 620 | | 64 691 | | 73 805 |
| | 20 | 49 560 | | 56 875 | | 64 976 | | 74 131 |
| | 30 | 49 793 | | 57 131 | | 65 263 | | 74 459 |
| | 40 | 50 027 | | 57 389 | | 65 550 | | 74 789 |
| | 50 | 50 262 | | 57 646 | | 65 839 | | 75 119 |
| 45 | 00 | 50 497 | 50 | 57 905 | 55 | 66 129 | 60 | 75 451 |

# A Table of Meridional parts.

| Lat. | | | Lat | | Lat | | Lat | |
|---|---|---|---|---|---|---|---|---|
| D. | M. | D. parts | D. | D. parts | D. | D. parts | D. | D. parts |
| 60 | 00 | 75 451 | 65 | 86 307 | 70 | 99 42 | 75 | 116 16 |
| | 10 | 75 785 | | 86 702 | | 99 91 | | 116 81 |
| | 20 | 76 121 | | 87 100 | | 100 41 | | 117 46 |
| | 30 | 76 459 | | 87 501 | | 100 90 | | 118 12 |
| | 40 | 76 798 | | 87 90, | | 101 40 | | 118 79 |
| | 50 | 77 139 | | 88 30 | | 101 91 | | 119 47 |
| 61 | 00 | 77 482 | 66 | 88 718 | 71 | 102 42 | 76 | 120 15 |
| | 10 | 77 826 | | 89 129 | | 102 93 | | 120 85 |
| | 20 | 78 173 | | 89 543 | | 103 45 | | 121 55 |
| | 30 | 78 521 | | 89 959 | | 103 97 | | 122 26 |
| | 40 | 78 871 | | 90 378 | | 104 50 | | 122 97 |
| | 50 | 79 223 | | 90 801 | | 105 03 | | 123 70 |
| 62 | 00 | 79 577 | 67 | 91 226 | 72 | 105 57 | 77 | 124 44 |
| | 10 | 79 934 | | 91 654 | | 106 11 | | 125 18 |
| | 20 | 80 291 | | 92 084 | | 106 66 | | 125 94 |
| | 30 | 80 651 | | 92 518 | | 107 21 | | 126 70 |
| | 40 | 81 013 | | 92 955 | | 107 77 | | 127 48 |
| | 50 | 81 377 | | 93 395 | | 108 33 | | 128 26 |
| 63 | 00 | 81 743 | 68 | 93 839 | 73 | 108 90 | 78 | 129 06 |
| | 10 | 82 111 | | 94 285 | | 109 47 | | 129 86 |
| | 20 | 82 481 | | 94 734 | | 110 05 | | 130 68 |
| | 30 | 82 854 | | 95 188 | | 110 63 | | 131 51 |
| | 40 | 83 228 | | 95 644 | | 111 22 | | 132 35 |
| | 50 | 83 605 | | 96 103 | | 111 82 | | 133 21 |
| 64 | 00 | 83 984 | 69 | 96 567 | 74 | 112 42 | 79 | 134 07 |
| | 10 | 84 365 | | 97 034 | | 113 02 | | 134 95 |
| | 20 | 84 749 | | 97 504 | | 113 64 | | 135 85 |
| | 30 | 85 135 | | 97 978 | | 114 26 | | 136 75 |
| | 40 | 85 523 | | 98 45[illegible] | | 114 88 | | 137 68 |
| | 50 | 85 913 | | 98 036 | | 115 52 | | 138 61 |
| 65 | 00 | 86 307 | 70 | 99 422 | 75 | 116 16 | 80 | 139 56 |

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| Lgs Rumbs. | 100 G. M. | 80 g. m. | 60 g. m. | 40 g. m. | D m | 19 m | 18 m | 17 m | 16 m | D m |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4 59 | 3 59 | 2 59 | 1 59 | 60 | 57 | 54 | 51 | 48 | 45 |
| | 4 58 | 3 58 | 2 59 | 1 59 | 60 | 57 | 54 | 51 | 48 | 45 |
| | 4 56 | 3 57 | 2 58 | 1 58 | 59 | 56 | 53 | 50 | 47 | 44 |
| 1 | 4 54 | 3 55 | 2 56 | 1 57 | 59 | 56 | 53 | 50 | 47 | 44 |
| | 4 51 | 3 53 | 2 55 | 1 56 | 58 | 56 | 52 | 50 | 47 | 43 |
| | 4 47 | 3 50 | 2 52 | 1 55 | 57 | 55 | 52 | 49 | 46 | 43 |
| | 4 42 | 3 46 | 2 49 | 1 53 | 56 | 54 | 51 | 48 | 45 | 42 |
| 2 | 4 37 | 3 42 | 2 46 | 1 51 | 55 | 53 | 50 | 47 | 44 | 41 |
| | 4 31 | 3 37 | 2 43 | 1 48 | 54 | 52 | 49 | 46 | 43 | 40 |
| | 4 25 | 3 32 | 2 39 | 1 46 | 53 | 50 | 48 | 45 | 42 | 39 |
| | 4 17 | 3 26 | 2 34 | 1 43 | 51 | 49 | 46 | 44 | 41 | 38 |
| 3 | 4 10 | 3 20 | 2 30 | 1 40 | 50 | 47 | 45 | 42 | 40 | 37 |
| | 4 01 | 3 13 | 2 25 | 1 36 | 48 | 46 | 43 | 41 | 39 | 36 |
| | 3 52 | 3 05 | 2 19 | 1 32 | 46 | 44 | 42 | 39 | 37 | 35 |
| | 3 42 | 2 58 | 2 13 | 1 28 | 44 | 42 | 40 | 38 | 36 | 33 |
| 4 | 3 32 | 2 50 | 2 07 | 1 25 | 42 | 40 | 38 | 36 | 34 | 32 |
| | 3 22 | 2 41 | 2 01 | 1 21 | 40 | 38 | 36 | 34 | 32 | 30 |
| | 3 10 | 2 32 | 1 54 | 1 16 | 38 | 36 | 34 | 32 | 30 | 28 |
| | 2 59 | 2 23 | 1 47 | 1 12 | 36 | 34 | 32 | 30 | 29 | 27 |
| 5 | 2 47 | 2 14 | 1 40 | 1 07 | 33 | 32 | 30 | 28 | 27 | 25 |
| | 2 34 | 2 03 | 1 32 | 1 02 | 31 | 29 | 28 | 26 | 25 | 23 |
| | 2 22 | 1 53 | 1 25 | 0 57 | 28 | 27 | 25 | 24 | 23 | 22 |
| | 2 18 | 1 43 | 1 17 | 0 52 | 26 | 24 | 23 | 22 | 21 | 19 |
| 6 | 1 55 | 1 32 | 1 08 | 0 46 | 23 | 22 | 21 | 20 | 18 | 17 |
| | 1 41 | 1 20 | 1 00 | 0 40 | 20 | 19 | 18 | 17 | 16 | 15 |
| | 1 27 | 1 09 | 0 52 | 0 35 | 17 | 16 | 16 | 15 | 14 | 13 |
| | 1 13 | 0 58 | 0 44 | 0 30 | 15 | 14 | 13 | 12 | 12 | 11 |
| 7 | 0 59 | 0 47 | 0 35 | 0 24 | 12 | 11 | 11 | 10 | 09 | 09 |
| | 0 44 | 0 36 | 0 26 | 0 18 | 09 | 08 | 08 | 07 | 07 | 07 |
| | 0 30 | 0 24 | 0 18 | 0 12 | 06 | 06 | 05 | 05 | 05 | 04 |
| | 0 15 | 0 12 | 0 09 | 0 06 | 03 | 03 | 03 | 03 | 02 | 02 |

| 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Lgs. Rumbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm. | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | |
| 42 | 39 | 36 | 33 | 30 | 27 | 24 | 21 | 18 | 15 | 12 | 09 | 06 | 03 | |
| 42 | 39 | 36 | 33 | 30 | 27 | 24 | 21 | 18 | 15 | 12 | 09 | 06 | 03 | |
| 42 | 39 | 36 | 33 | 30 | 27 | 24 | 21 | 18 | 15 | 12 | 09 | 06 | 03 | |
| 41 | 38 | 35 | 32 | 29 | 26 | 24 | 21 | 18 | 15 | 12 | 09 | 06 | 03 | 1 |
| 41 | 38 | 35 | 32 | 29 | 26 | 23 | 20 | 17 | 15 | 12 | 09 | 06 | 03 | |
| 40 | 37 | 34 | 32 | 29 | 26 | 23 | 20 | 17 | 14 | 11 | 09 | 06 | 03 | |
| 40 | 37 | 34 | 31 | 28 | 25 | 23 | 20 | 17 | 14 | 11 | 08 | 06 | 03 | |
| 39 | 36 | 33 | 31 | 28 | 25 | 22 | 19 | 17 | 14 | 11 | 08 | 06 | 03 | 2 |
| 38 | 35 | 33 | 30 | 27 | 24 | 22 | 19 | 16 | 14 | 11 | 08 | 05 | 03 | |
| 37 | 34 | 32 | 29 | 26 | 24 | 21 | 19 | 16 | 13 | 11 | 08 | 05 | 03 | |
| 36 | 33 | 31 | 28 | 26 | 23 | 21 | 18 | 15 | 13 | 10 | 08 | 05 | 03 | |
| 35 | 32 | 30 | 27 | 25 | 22 | 20 | 17 | 15 | 12 | 10 | 07 | 05 | 02 | 3 |
| 34 | 31 | 29 | 26 | 24 | 22 | 19 | 17 | 14 | 12 | 10 | 07 | 05 | 02 | |
| 33 | 30 | 28 | 26 | 23 | 21 | 19 | 16 | 14 | 12 | 09 | 07 | 05 | 02 | |
| 31 | 29 | 27 | 24 | 22 | 20 | 18 | 16 | 13 | 11 | 09 | 07 | 04 | 02 | |
| 30 | 28 | 25 | 23 | 21 | 19 | 17 | 15 | 13 | 11 | 08 | 06 | 04 | 02 | 4 |
| 28 | 26 | 24 | 22 | 20 | 18 | 16 | 14 | 12 | 10 | 08 | 06 | 04 | 02 | |
| 27 | 25 | 23 | 21 | 19 | 17 | 15 | 13 | 11 | 10 | 08 | 06 | 04 | 02 | |
| 25 | 23 | 21 | 20 | 18 | 16 | 14 | 13 | 11 | 09 | 07 | 05 | 04 | 02 | |
| 23 | 22 | 20 | 18 | 17 | 15 | 13 | 12 | 10 | 08 | 07 | 05 | 03 | 02 | 5 |
| 22 | 20 | 18 | 17 | 15 | 14 | 12 | 11 | 09 | 08 | 06 | 05 | 03 | 02 | |
| 20 | 18 | 17 | 16 | 14 | 13 | 11 | 10 | 08 | 07 | 06 | 04 | 03 | 01 | |
| 18 | 17 | 15 | 14 | 13 | 12 | 10 | 09 | 08 | 06 | 05 | 04 | 03 | 01 | |
| 16 | 15 | 14 | 13 | 11 | 10 | 09 | 08 | 07 | 06 | 05 | 03 | 02 | 01 | 6 |
| 14 | 13 | 12 | 12 | 10 | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 02 | 01 | |
| 12 | 11 | 10 | 10 | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 03 | 02 | 01 | |
| 10 | 09 | 09 | 08 | 07 | 08 | 06 | 05 | 04 | 04 | 03 | 02 | 01 | 01 | |
| 08 | 08 | 07 | 06 | 06 | 06 | 05 | 04 | 03 | 03 | 02 | 02 | 01 | 01 | 7 |
| 06 | 06 | 05 | 05 | 05 | 04 | 04 | 03 | 03 | 02 | 02 | 01 | 01 | 01 | |
| 04 | 04 | 04 | 03 | 03 | 03 | 02 | 02 | 02 | 01 | 01 | 01 | 01 | 00 | |
| 02 | 02 | 02 | 02 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 00 | 00 | |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m | Long. | dif. | Long. | dif. | Long. | dif. | Long. | dif. |
| 0 | 10 | 0 02 | 2 | 0 04 | 4 | 0 07 | 6 | 0 10 | 10 |
| | 20 | 0 04 | 2 | 0 08 | 4 | 0 13 | 7 | 0 20 | 10 |
| | 30 | 0 06 | 2 | 0 12 | 4 | 0 20 | 7 | 0 30 | 10 |
| | 40 | 0 08 | 2 | 0 16 | 4 | 0 27 | 6 | 0 40 | 10 |
| | 50 | 0 10 | 2 | 0 20 | 5 | 0 33 | 7 | 0 50 | 10 |
| 1 | 00 | 0 12 | 2 | 0 25 | 4 | 0 40 | 7 | 1 00 | 10 |
| | 10 | 0 14 | 2 | 0 29 | 4 | 0 47 | 6 | 1 10 | 10 |
| | 20 | 0 16 | 2 | 0 33 | 4 | 0 53 | 7 | 1 20 | 10 |
| | 30 | 0 18 | 2 | 0 37 | 4 | 1 00 | 7 | 1 30 | 10 |
| | 40 | 0 20 | 2 | 0 41 | 4 | 1 07 | 6 | 1 40 | 10 |
| | 50 | 0 22 | 2 | 0 45 | 5 | 1 13 | 7 | 1 50 | 10 |
| 2 | 00 | 0 24 | 2 | 0 50 | 4 | 1 20 | 7 | 2 00 | 10 |
| | 10 | 0 26 | 2 | 0 54 | 4 | 1 27 | 6 | 2 10 | 10 |
| | 20 | 0 28 | 2 | 0 58 | 4 | 1 33 | 7 | 2 20 | 10 |
| | 30 | 0 30 | 2 | 1 02 | 4 | 1 40 | 7 | 2 30 | 10 |
| | 40 | 0 32 | 2 | 1 06 | 4 | 1 47 | 6 | 2 40 | 10 |
| | 50 | 0 34 | 2 | 1 10 | 5 | 1 53 | 7 | 2 50 | 10 |
| 3 | 00 | 0 36 | 2 | 1 15 | 4 | 2 00 | 7 | 3 00 | 10 |
| | 10 | 0 38 | 2 | 1 19 | 4 | 2 07 | 6 | 3 10 | 10 |
| | 20 | 0 40 | 2 | 1 23 | 4 | 2 13 | 7 | 3 20 | 10 |
| | 30 | 0 42 | 2 | 1 27 | 4 | 2 20 | 7 | 3 30 | 10 |
| | 40 | 0 44 | 2 | 1 31 | 4 | 2 27 | 6 | 3 40 | 10 |
| | 50 | 0 46 | 2 | 1 35 | 4 | 2 33 | 7 | 3 50 | 10 |
| 4 | 00 | 0 48 | 2 | 1 39 | 4 | 2 40 | 7 | 4 00 | 10 |
| | 10 | 0 50 | 2 | 1 43 | 5 | 2 47 | 7 | 4 10 | 10 |
| | 20 | 0 52 | 2 | 1 48 | 4 | 2 54 | 6 | 4 20 | 10 |
| | 30 | 0 54 | 2 | 1 52 | 4 | 3 00 | 7 | 4 30 | 10 |
| | 40 | 0 56 | 2 | 1 56 | 4 | 3 07 | 7 | 4 40 | 10 |
| | 50 | 0 58 | 2 | 2 00 | 4 | 3 14 | 7 | 4 50 | 10 |
| 5 | 00 | 1 00 | 2 | 2 04 | 4 | 3 21 | 6 | 5 00 | 10 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longis | diff. | Longis. | diff. | Longit. | diff. |
| 0 | 10 | 00 15 | 15 | 00 24 | 24 | 00 50 | 50 |
| | 20 | 00 30 | 15 | 00 48 | 24 | 01 40 | 51 |
| | 30 | 00 45 | 15 | 01 12 | 24 | 02 31 | 50 |
| | 40 | 01 00 | 15 | 01 36 | 24 | 03 21 | 50 |
| | 50 | 01 15 | 15 | 02 00 | 25 | 04 11 | 50 |
| 1 | 00 | 01 29 | 14 | 02 25 | 24 | 05 01 | 51 |
| | 10 | 01 44 | 15 | 02 49 | 24 | 05 52 | 50 |
| | 20 | 01 59 | 15 | 03 13 | 24 | 06 42 | 50 |
| | 30 | 02 14 | 15 | 03 37 | 24 | 07 32 | 50 |
| | 40 | 02 29 | 15 | 04 01 | 24 | 08 22 | 51 |
| | 50 | 02 44 | 15 | 04 25 | 25 | 09 13 | 50 |
| 2 | 00 | 02 59 | 15 | 04 50 | 24 | 10 03 | 51 |
| | 10 | 03 14 | 15 | 05 14 | 24 | 10 54 | 50 |
| | 20 | 03 29 | 15 | 05 38 | 24 | 11 44 | 50 |
| | 30 | 03 44 | 15 | 06 02 | 24 | 12 34 | 50 |
| | 40 | 03 59 | 15 | 06 26 | 24 | 13 24 | 51 |
| | 50 | 04 14 | 15 | 06 50 | 25 | 14 15 | 50 |
| 3 | 00 | 04 29 | 15 | 07 15 | 24 | 15 05 | 51 |
| | 10 | 04 44 | 15 | 07 39 | 24 | 15 56 | 50 |
| | 20 | 04 59 | 15 | 08 03 | 24 | 16 46 | 50 |
| | 30 | 05 14 | 15 | 08 27 | 24 | 17 36 | 50 |
| | 40 | 05 29 | 15 | 08 51 | 24 | 18 26 | 51 |
| | 50 | 05 44 | 16 | 09 15 | 25 | 19 17 | 50 |
| 4 | 00 | 06 00 | 15 | 09 40 | 24 | 20 07 | 51 |
| | 10 | 06 15 | 15 | 10 04 | 24 | 20 58 | 50 |
| | 20 | 06 30 | 15 | 10 28 | 24 | 21 48 | 51 |
| | 30 | 06 45 | 15 | 10 53 | 24 | 22 39 | 50 |
| | 40 | 07 00 | 15 | 11 17 | 24 | 23 29 | 51 |
| | 50 | 07 15 | 15 | 11 41 | 25 | 24 20 | 50 |
| 5 | 00 | 07 30 | 15 | 12 05 | 24 | 25 10 | 51 |

| Latit. | | First | | Second | | Third. | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m | Long. | dif. | Long. | dif. | Long. | dif. | Long. | dif. |
| 5 | 10 | 1 02 | 2 | 2 08 | 4 | 3 27 | 7 | 5 10 | 10 |
| | 20 | 1 04 | 2 | 2 12 | 4 | 3 34 | 7 | 5 20 | 10 |
| | 30 | 1 06 | 2 | 2 16 | 4 | 3 41 | 7 | 5 30 | 10 |
| | 40 | 1 08 | 2 | 2 20 | 5 | 3 48 | 6 | 5 40 | 10 |
| | 50 | 1 10 | 2 | 2 25 | 4 | 3 54 | 7 | 5 50 | 11 |
| 6 | 00 | 1 12 | 2 | 2 29 | 4 | 4 01 | 6 | 6 01 | 10 |
| | 10 | 1 14 | 2 | 2 33 | 5 | 4 07 | 7 | 6 11 | 10 |
| | 20 | 1 16 | 2 | 2 38 | 4 | 4 14 | 7 | 6 21 | 10 |
| | 30 | 1 18 | 2 | 2 42 | 4 | 4 21 | 7 | 6 31 | 10 |
| | 40 | 1 20 | 2 | 2 46 | 4 | 4 28 | 6 | 6 41 | 10 |
| | 50 | 1 22 | 2 | 2 50 | 5 | 4 34 | 7 | 6 51 | 10 |
| 7 | 00 | 1 24 | 2 | 2 55 | 4 | 4 41 | 7 | 7 01 | 10 |
| | 10 | 1 26 | 2 | 2 59 | 4 | 4 48 | 7 | 7 11 | 10 |
| | 20 | 1 28 | 2 | 3 03 | 4 | 4 55 | 7 | 7 21 | 10 |
| | 30 | 1 30 | 2 | 3 07 | 4 | 5 02 | 7 | 7 31 | 10 |
| | 40 | 1 32 | 2 | 3 11 | 4 | 5 09 | 6 | 7 41 | 10 |
| | 50 | 1 34 | 2 | 3 15 | 4 | 5 15 | 7 | 7 51 | 11 |
| 8 | 00 | 1 36 | 2 | 3 19 | 5 | 5 22 | 7 | 8 02 | 10 |
| | 10 | 1 38 | 2 | 3 24 | 4 | 5 29 | 7 | 8 12 | 10 |
| | 20 | 1 40 | 2 | 3 28 | 4 | 5 36 | 6 | 8 22 | 10 |
| | 30 | 1 42 | 2 | 3 32 | 4 | 5 42 | 7 | 8 32 | 10 |
| | 40 | 1 44 | 2 | 3 36 | 4 | 5 49 | 6 | 8 42 | 10 |
| | 50 | 1 46 | 2 | 3 40 | 4 | 5 55 | 7 | 8 52 | 10 |
| 9 | 00 | 1 48 | 2 | 3 44 | 5 | 6 02 | 7 | 9 02 | 10 |
| | 10 | 1 50 | 2 | 3 49 | 4 | 6 09 | 7 | 9 12 | 10 |
| | 20 | 1 52 | 2 | 3 53 | 4 | 6 16 | 7 | 9 22 | 10 |
| | 30 | 1 54 | 2 | 3 57 | 4 | 6 23 | 7 | 9 33 | 10 |
| | 40 | 1 56 | 2 | 4 01 | 5 | 6 30 | 6 | 9 43 | 11 |
| | 50 | 1 58 | 2 | 4 06 | 4 | 6 36 | 7 | 9 54 | 10 |
| 10 | 00 | 2 00 | 2 | 4 10 | 4 | 6 43 | 7 | 10 02 | 10 |

| Latit. | | Fift | | | Sixt | | | Seventh | | |
|---|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Longit | | diff. | Longit. | | diff. | Longit. | | diff. |
| 5 | 10 | 07 | 45 | 15 | 12 | 29 | 24 | 26 | 01 | 50 |
| | 20 | 08 | 00 | 15 | 12 | 53 | 25 | 26 | 51 | 50 |
| | 30 | 08 | 15 | 15 | 13 | 18 | 24 | 27 | 41 | 51 |
| | 40 | 08 | 30 | 15 | 13 | 42 | 24 | 28 | 32 | 51 |
| | 50 | 08 | 44 | 15 | 14 | 06 | 25 | 29 | 23 | 50 |
| 6 | 00 | 09 | 00 | 15 | 14 | 31 | 24 | 30 | 13 | 51 |
| | 10 | 09 | 15 | 15 | 14 | 55 | 24 | 31 | 04 | 50 |
| | 20 | 09 | 30 | 15 | 15 | 19 | 25 | 31 | 54 | 51 |
| | 30 | 09 | 45 | 15 | 15 | 44 | 24 | 32 | 45 | 50 |
| | 40 | 10 | 00 | 15 | 16 | 08 | 24 | 33 | 35 | 50 |
| | 50 | 10 | 15 | 15 | 16 | 32 | 24 | 34 | 25 | 51 |
| 7 | 00 | 10 | 30 | 15 | 16 | 56 | 24 | 35 | 16 | 51 |
| | 10 | 10 | 45 | 15 | 17 | 20 | 24 | 36 | 07 | 51 |
| | 20 | 11 | 00 | 15 | 17 | 44 | 25 | 36 | 58 | 51 |
| | 30 | 11 | 15 | 15 | 18 | 09 | 24 | 37 | 49 | 50 |
| | 40 | 11 | 39 | 15 | 18 | 33 | 24 | 38 | 39 | 50 |
| | 50 | 11 | 45 | 16 | 18 | 97 | 25 | 39 | 29 | 51 |
| 8 | 00 | 12 | 01 | 15 | 19 | 22 | 24 | 40 | 20 | 51 |
| | 10 | 12 | 16 | 15 | 19 | 46 | 25 | 41 | 11 | 51 |
| | 20 | 12 | 31 | 15 | 20 | 11 | 25 | 42 | 02 | 51 |
| | 30 | 12 | 46 | 15 | 20 | 36 | 24 | 42 | 53 | 50 |
| | 40 | 13 | 01 | 15 | 21 | 00 | 24 | 43 | 43 | 51 |
| | 50 | 13 | 16 | 15 | 21 | 24 | 25 | 44 | 34 | 51 |
| 9 | 00 | 13 | 31 | 15 | 21 | 49 | 24 | 45 | 25 | 51 |
| | 10 | 13 | 46 | 15 | 22 | 13 | 24 | 46 | 16 | 51 |
| | 20 | 14 | 01 | 15 | 22 | 37 | 25 | 47 | 07 | 51 |
| | 30 | 14 | 16 | 16 | 23 | 02 | 24 | 47 | 58 | 51 |
| | 40 | 14 | 32 | 15 | 23 | 26 | 25 | 48 | 49 | 51 |
| | 50 | 14 | 47 | 15 | 23 | 51 | 25 | 49 | 40 | 51 |
| 10 | 00 | 15 | 02 | 15 | 24 | 16 | 24 | 50 | 31 | 51 |



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| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m | Long. | dif. | Long. | dif. | Long. | dif. | Long. | d |
| 10 | 10 | 2 02 | 2 | 4 14 | 4 | 6 50 | 7 | 10 13 | 10 |
| | 20 | 2 04 | 2 | 4 18 | 4 | 6 57 | 6 | 10 23 | 11 |
| | 30 | 2 06 | 2 | 4 22 | 4 | 7 03 | 7 | 10 34 | 10 |
| | 40 | 2 08 | 2 | 4 26 | 5 | 7 10 | 7 | 10 44 | 10 |
| | 50 | 2 10 | 2 | 4 31 | 4 | 7 17 | 6 | 10 54 | 10 |
| 11 | 00 | 2 12 | 2 | 4 35 | 4 | 7 23 | 7 | 11 04 | 10 |
| | 10 | 2 14 | 2 | 4 39 | 4 | 7 30 | 7 | 11 14 | 10 |
| | 20 | 2 16 | 2 | 4 43 | 5 | 7 37 | 7 | 11 24 | 11 |
| | 30 | 2 18 | 2 | 4 48 | 4 | 7 44 | 7 | 11 35 | 10 |
| | 40 | 2 20 | 2 | 4 52 | 4 | 7 51 | 7 | 11 45 | 10 |
| | 50 | 2 22 | 2 | 4 56 | 5 | 7 58 | 6 | 11 55 | 10 |
| 12 | 00 | 2 24 | 2 | 5 01 | 4 | 8 04 | 7 | 12 05 | 10 |
| | 10 | 2 26 | 2 | 5 05 | 4 | 8 11 | 7 | 12 15 | 10 |
| | 20 | 2 28 | 2 | 5 09 | 4 | 8 18 | 7 | 12 25 | 11 |
| | 30 | 2 30 | 2 | 5 13 | 5 | 8 25 | 7 | 12 36 | 10 |
| | 40 | 2 32 | 2 | 5 18 | 4 | 8 32 | 7 | 12 46 | 10 |
| | 50 | 2 34 | 2 | 5 22 | 4 | 8 39 | 7 | 12 56 | 11 |
| 13 | 00 | 2 37 | 2 | 5 26 | 4 | 8 46 | 6 | 13 07 | 10 |
| | 10 | 2 39 | 2 | 5 30 | 4 | 8 52 | 7 | 13 17 | 10 |
| | 20 | 2 41 | 2 | 5 34 | 4 | 8 59 | 7 | 13 27 | 11 |
| | 30 | 2 43 | 2 | 5 38 | 5 | 9 06 | 7 | 13 38 | 10 |
| | 40 | 2 45 | 2 | 5 43 | 4 | 9 13 | 7 | 13 48 | 10 |
| | 50 | 2 47 | 2 | 5 47 | 4 | 9 20 | 7 | 13 58 | 10 |
| 14 | 00 | 2 49 | 2 | 5 51 | 4 | 9 27 | 7 | 14 08 | 10 |
| | 10 | 2 51 | 2 | 5 55 | 5 | 9 34 | 7 | 14 18 | 10 |
| | 20 | 2 53 | 2 | 6 00 | 4 | 9 41 | 7 | 14 28 | 11 |
| | 30 | 2 55 | 2 | 6 04 | 4 | 9 48 | 6 | 14 39 | 10 |
| | 40 | 2 57 | 2 | 6 08 | 5 | 9 54 | 7 | 14 49 | 10 |
| | 50 | 2 59 | 2 | 6 13 | 4 | 10 01 | 7 | 14 59 | 11 |
| 15 | 00 | 3 01 | 2 | 6 17 | 4 | 10 08 | 7 | 15 10 | 10 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| Deg. | Min. | Longit. | diff. | Longit. | diff | Longit. | diff. |
| 10 | 10 | 15 17 | 15 | 24 40 | 24 | 51 22 | 52 |
| | 20 | 15 32 | 16 | 25 04 | 25 | 52 14 | 51 |
| | 30 | 15 48 | 15 | 25 29 | 24 | 53 05 | 51 |
| | 40 | 16 03 | 15 | 25 53 | 25 | 53 56 | 51 |
| | 50 | 16 18 | 16 | 26 18 | 25 | 54 47 | 51 |
| 11 | 00 | 16 34 | 15 | 26 43 | 24 | 55 38 | 51 |
| | 10 | 16 49 | 16 | 27 07 | 25 | 56 29 | 51 |
| | 20 | 17 05 | 15 | 27 32 | 25 | 57 20 | 52 |
| | 30 | 17 20 | 15 | 27 57 | 24 | 58 12 | 51 |
| | 40 | 17 35 | 15 | 28 21 | 24 | 59 03 | 51 |
| | 50 | 17 50 | 15 | 28 45 | 25 | 59 54 | 52 |
| 12 | 00 | 18 05 | 15 | 29 10 | 25 | 20 46 | 51 |
| | 10 | 18 20 | 15 | 29 35 | 25 | 61 37 | 51 |
| | 20 | 18 35 | 16 | 30 00 | 25 | 62 28 | 52 |
| | 30 | 18 51 | 15 | 30 25 | 24 | 63 20 | 51 |
| | 40 | 19 06 | 15 | 30 49 | 25 | 64 11 | 52 |
| | 50 | 19 21 | 16 | 31 14 | 25 | 65 03 | 52 |
| 13 | 00 | 19 37 | 15 | 31 39 | 25 | 65 55 | 52 |
| | 10 | 19 52 | 16 | 32 04 | 25 | 66 47 | 51 |
| | 20 | 20 08 | 15 | 32 29 | 25 | 67 38 | 52 |
| | 30 | 20 23 | 15 | 32 54 | 24 | 68 30 | 51 |
| | 40 | 20 38 | 16 | 33 18 | 25 | 69 21 | 52 |
| | 50 | 20 54 | 16 | 33 43 | 25 | 70 13 | 52 |
| 14 | 00 | 21 10 | 15 | 34 08 | 25 | 71 05 | 52 |
| | 10 | 21 25 | 15 | 34 33 | 25 | 71 57 | 52 |
| | 20 | 21 40 | 16 | 34 58 | 25 | 72 49 | 52 |
| | 30 | 21 56 | 15 | 35 23 | 25 | 73 41 | 52 |
| | 40 | 22 11 | 15 | 35 48 | 25 | 74 33 | 52 |
| | 50 | 22 26 | 16 | 36 13 | 25 | 75 25 | 52 |
| 15 | 00 | 22 42 | 15 | 36 38 | 25 | 76 17 | 52 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | dif. | Long. | dif. | Long. | dif |
| 15 | 10 | 3 03 | 2 | 6 21 | 5 | 10 15 | 7 | 15 20 | 10 |
| | 20 | 3 05 | 2 | 6 26 | 4 | 10 22 | 7 | 15 30 | 11 |
| | 30 | 3 07 | 2 | 6 30 | 4 | 10 29 | 7 | 15 41 | 11 |
| | 40 | 3 09 | 2 | 6 34 | 5 | 10 36 | 7 | 15 51 | 10 |
| | 50 | 3 11 | 2 | 6 39 | 4 | 10 43 | 7 | 16 02 | 11 |
| 16 | 00 | 3 13 | 2 | 6 43 | 4 | 10 50 | 7 | 16 13 | 10 |
| | 10 | 3 15 | 2 | 6 47 | 4 | 10 57 | 7 | 16 23 | 10 |
| | 20 | 3 17 | 2 | 6 51 | 5 | 11 04 | 7 | 16 33 | 11 |
| | 30 | 3 19 | 3 | 6 56 | 4 | 11 11 | 7 | 16 44 | 10 |
| | 40 | 3 22 | 2 | 7 00 | 4 | 11 18 | 7 | 16 54 | 10 |
| | 50 | 3 24 | 2 | 7 04 | 4 | 11 25 | 7 | 17 04 | 11 |
| 17 | 00 | 3 26 | 2 | 7 08 | 5 | 11 32 | 7 | 17 15 | 10 |
| | 10 | 3 28 | 2 | 7 13 | 4 | 11 39 | 7 | 17 25 | 10 |
| | 20 | 3 30 | 2 | 7 17 | 4 | 11 46 | 7 | 17 35 | 11 |
| | 30 | 3 32 | 2 | 7 21 | 5 | 11 53 | 7 | 17 46 | 10 |
| | 40 | 3 34 | 2 | 7 26 | 4 | 12 00 | 7 | 17 56 | 11 |
| | 50 | 3 36 | 2 | 7 30 | 5 | 12 07 | 7 | 18 07 | 11 |
| 18 | 00 | 3 38 | 2 | 7 35 | 4 | 12 14 | 7 | 18 18 | 10 |
| | 10 | 3 40 | 2 | 7 39 | 4 | 12 21 | 7 | 18 28 | 11 |
| | 20 | 3 42 | 2 | 7 43 | 4 | 12 28 | 7 | 18 39 | 11 |
| | 30 | 3 44 | 2 | 7 47 | 5 | 12 35 | 7 | 18 50 | 10 |
| | 40 | 3 46 | 3 | 7 52 | 5 | 12 42 | 7 | 19 00 | 10 |
| | 50 | 3 49 | 2 | 7 57 | 4 | 12 49 | 7 | 19 10 | 11 |
| 19 | 00 | 3 51 | 2 | 8 01 | 4 | 12 56 | 7 | 19 21 | 10 |
| | 10 | 3 53 | 2 | 8 05 | 5 | 13 03 | 7 | 19 31 | 11 |
| | 20 | 3 55 | 2 | 8 10 | 4 | 13 10 | 7 | 19 42 | 11 |
| | 30 | 3 57 | 2 | 8 14 | 4 | 13 17 | 7 | 19 53 | 10 |
| | 40 | 3 59 | 2 | 8 18 | 5 | 13 24 | 7 | 20 03 | 11 |
| | 50 | 4 01 | 2 | 8 23 | 4 | 13 31 | 7 | 20 14 | 11 |
| 20 | 00 | 4 04 | 2 | 8 27 | 5 | 13 38 | 7 | 20 25 | 10 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | diff | Longit | diff | Longit | diff. |
| 15 | 10 | 22 57 | 16 | 37 03 | 25 | 77 09 | 52 |
| | 20 | 23 13 | 15 | 37 28 | 25 | 78 01 | 52 |
| | 30 | 23 28 | 16 | 37 53 | 25 | 78 53 | 52 |
| | 40 | 23 44 | 16 | 38 18 | 25 | 79 45 | 52 |
| | 50 | 24 00 | 16 | 38 43 | 25 | 80 37 | 53 |
| 16 | 00 | 24 16 | 15 | 39 08 | 25 | 81 30 | 52 |
| | 10 | 24 31 | 16 | 39 33 | 25 | 82 22 | 52 |
| | 20 | 24 47 | 16 | 39 58 | 26 | 83 14 | 53 |
| | 30 | 25 03 | 15 | 40 24 | 25 | 84 07 | 52 |
| | 40 | 25 18 | 15 | 40 49 | 25 | 84 59 | 53 |
| | 50 | 25 33 | 16 | 41 14 | 25 | 85 52 | 53 |
| 17 | 00 | 25 49 | 15 | 41 39 | 25 | 86 45 | 52 |
| | 10 | 26 04 | 16 | 42 04 | 25 | 87 37 | 52 |
| | 20 | 26 20 | 16 | 42 29 | 26 | 88 29 | 53 |
| | 30 | 26 36 | 15 | 42 55 | 25 | 89 22 | 53 |
| | 40 | 26 51 | 16 | 43 20 | 25 | 90 15 | 53 |
| | 50 | 27 07 | 16 | 43 45 | 25 | 91 08 | 53 |
| 18 | 00 | 27 23 | 16 | 44 11 | 25 | 92 01 | 53 |
| | 10 | 27 39 | 16 | 44 36 | 25 | 92 54 | 53 |
| | 20 | 27 55 | 16 | 45 01 | 26 | 93 47 | 53 |
| | 30 | 28 11 | 15 | 45 27 | 25 | 94 40 | 53 |
| | 40 | 28 26 | 16 | 45 52 | 26 | 95 33 | 53 |
| | 50 | 28 42 | 16 | 46 18 | 26 | 96 26 | 53 |
| 19 | 00 | 28 58 | 16 | 46 44 | 25 | 97 19 | 53 |
| | 10 | 29 14 | 16 | 47 09 | 26 | 98 12 | 53 |
| | 20 | 29 30 | 16 | 47 35 | 26 | 99 05 | 54 |
| | 30 | 29 46 | 15 | 48 01 | 25 | 99 59 | 53 |
| | 40 | 30 01 | 16 | 48 26 | 25 | 100 52 | 53 |
| | 50 | 30 17 | 16 | 48 51 | 26 | 101 45 | 53 |
| 20 | 00 | 30 33 | 16 | 49 17 | 26 | 102 38 | 54 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | dif. | Long. | dif. | Long. | di |
| 20 | 10 | 4 06 | 3 | 08 32 | 4 | 13 45 | 7 | 20 35 | 11 |
| | 20 | 4 09 | 2 | 08 36 | 5 | 13 52 | 8 | 20 46 | 11 |
| | 30 | 4 11 | 2 | 08 41 | 5 | 14 00 | 7 | 20 57 | 10 |
| | 40 | 4 13 | 2 | 08 46 | 4 | 14 07 | 7 | 21 07 | 11 |
| | 50 | 4 15 | 2 | 08 50 | 4 | 14 14 | 7 | 21 18 | 11 |
| 21 | 00 | 4 17 | 2 | 08 54 | 4 | 14 21 | 7 | 21 29 | 10 |
| | 10 | 4 19 | 2 | 08 58 | 5 | 14 28 | 8 | 21 39 | 11 |
| | 20 | 4 21 | 2 | 09 03 | 5 | 14 36 | 7 | 21 50 | 11 |
| | 30 | 4 23 | 2 | 09 08 | 4 | 14 43 | 7 | 22 01 | 11 |
| | 40 | 4 25 | 2 | 09 12 | 4 | 14 50 | 7 | 22 12 | 11 |
| | 50 | 4 27 | 2 | 09 16 | 4 | 14 57 | 7 | 22 23 | 11 |
| 22 | 00 | 4 29 | 2 | 09 20 | 5 | 15 04 | 7 | 22 34 | 10 |
| | 10 | 4 31 | 2 | 09 25 | 5 | 15 11 | 7 | 22 44 | 11 |
| | 20 | 4 33 | 2 | 09 30 | 4 | 15 18 | 8 | 22 55 | 11 |
| | 30 | 4 35 | 2 | 09 34 | 4 | 15 26 | 7 | 23 06 | 10 |
| | 40 | 4 37 | 3 | 09 38 | 5 | 15 33 | 8 | 23 16 | 11 |
| | 50 | 4 40 | 2 | 09 43 | 4 | 15 41 | 7 | 23 27 | 11 |
| 23 | 00 | 4 42 | 2 | 09 47 | 5 | 15 48 | 7 | 23 38 | 11 |
| | 10 | 4 44 | 2 | 09 52 | 5 | 15 55 | 8 | 23 49 | 11 |
| | 20 | 4 46 | 2 | 09 57 | 5 | 16 03 | 7 | 24 00 | 11 |
| | 30 | 4 48 | 3 | 10 02 | 4 | 16 10 | 7 | 24 11 | 11 |
| | 40 | 4 51 | 2 | 10 06 | 4 | 16 17 | 8 | 24 22 | 11 |
| | 50 | 4 53 | 2 | 10 10 | 4 | 16 25 | 7 | 24 33 | 11 |
| 24 | 00 | 4 55 | 2 | 10 14 | 5 | 16 32 | 7 | 24 44 | 11 |
| | 10 | 4 57 | 2 | 10 19 | 5 | 16 39 | 7 | 24 55 | 11 |
| | 20 | 4 59 | 3 | 10 24 | 5 | 16 46 | 7 | 25 06 | 11 |
| | 30 | 5 02 | 2 | 10 29 | 4 | 16 53 | 8 | 25 17 | 11 |
| | 40 | 5 04 | 2 | 10 33 | 4 | 17 01 | 7 | 25 28 | 11 |
| | 50 | 5 06 | 2 | 10 37 | 5 | 17 08 | 8 | 25 39 | 11 |
| 25 | 00 | 5 08 | 2 | 10 42 | 5 | 17 16 | 7 | 25 05 | 11 |

| Latit. | | Fift | | | Sixt | | | Seventh | | |
|---|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | | diff | Longit | | diff | Longit | | diff. |
| 20 | 10 | 30 | 49 | 16 | 49 | 43 | 26 | 103 | 32 | 54 |
| | 20 | 31 | 05 | 16 | 50 | 09 | 26 | 104 | 26 | 54 |
| | 30 | 31 | 21 | 16 | 50 | 35 | 25 | 105 | 20 | 53 |
| | 40 | 31 | 37 | 16 | 51 | 09 | 26 | 106 | 13 | 54 |
| | 50 | 31 | 53 | 16 | 51 | 26 | 26 | 107 | 07 | 54 |
| 21 | 00 | 32 | 09 | 16 | 51 | 52 | 26 | 108 | 01 | 54 |
| | 10 | 32 | 25 | 16 | 52 | 18 | 26 | 108 | 55 | 54 |
| | 20 | 32 | 41 | 16 | 52 | 44 | 26 | 109 | 49 | 54 |
| | 30 | 32 | 57 | 16 | 53 | 10 | 26 | 110 | 43 | 54 |
| | 40 | 33 | 13 | 16 | 53 | 26 | 26 | 111 | 37 | 54 |
| | 50 | 33 | 29 | 17 | 54 | 02 | 26 | 112 | 31 | 54 |
| 22 | 00 | 33 | 46 | 16 | 54 | 28 | 26 | 113 | 25 | 54 |
| | 10 | 34 | 02 | 16 | 54 | 54 | 26 | 114 | 19 | 54 |
| | 20 | 34 | 18 | 16 | 55 | 20 | 26 | 115 | 13 | 55 |
| | 30 | 34 | 34 | 16 | 55 | 46 | 26 | 116 | 08 | 54 |
| | 40 | 34 | 50 | 16 | 56 | 12 | 26 | 117 | 02 | 55 |
| | 50 | 35 | 06 | 17 | 56 | 38 | 27 | 117 | 57 | 55 |
| 23 | 00 | 35 | 23 | 16 | 57 | 05 | 26 | 118 | 52 | 54 |
| | 10 | 35 | 39 | 16 | 57 | 31 | 26 | 119 | 46 | 55 |
| | 20 | 35 | 55 | 17 | 57 | 57 | 26 | 120 | 41 | 55 |
| | 30 | 36 | 12 | 16 | 58 | 24 | 26 | 121 | 36 | 55 |
| | 40 | 36 | 28 | 16 | 58 | 50 | 26 | 122 | 31 | 55 |
| | 50 | 36 | 44 | 17 | 59 | 16 | 27 | 123 | 26 | 55 |
| 24 | 00 | 37 | 01 | 16 | 59 | 43 | 26 | 124 | 21 | 55 |
| | 10 | 37 | 17 | 16 | 60 | 09 | 26 | 125 | 16 | 55 |
| | 20 | 37 | 33 | 17 | 60 | 35 | 27 | 126 | 11 | 55 |
| | 30 | 37 | 50 | 16 | 61 | 02 | 26 | 127 | 06 | 55 |
| | 40 | 38 | 06 | 17 | 61 | 28 | 27 | 128 | 01 | 55 |
| | 50 | 38 | 23 | 17 | 61 | 55 | 27 | 128 | 56 | 56 |
| 25 | 00 | 38 | 40 | 16 | 62 | 22 | 26 | 129 | 52 | 55 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m | Long. | dif. | Long. | dif. | Long. | dif. | Long. | dif. |
| 25 | 10 | 5 10 | 2 | 10 47 | 4 | 17 23 | 7 | 26 01 | 11 |
| | 20 | 5 12 | 2 | 10 51 | 5 | 17 30 | 8 | 26 12 | 11 |
| | 30 | 5 14 | 3 | 10 56 | 5 | 17 38 | 7 | 26 23 | 11 |
| | 40 | 5 17 | 2 | 11 01 | 4 | 17 45 | 7 | 26 34 | 11 |
| | 50 | 5 19 | 2 | 11 05 | 5 | 17 52 | 8 | 26 45 | 11 |
| 26 | 00 | 5 21 | 2 | 11 10 | 4 | 18 00 | 7 | 26 56 | 11 |
| | 10 | 5 23 | 2 | 11 14 | 4 | 18 07 | 8 | 27 07 | 11 |
| | 20 | 5 25 | 2 | 11 18 | 5 | 18 15 | 8 | 27 18 | 11 |
| | 30 | 5 27 | 3 | 11 23 | 5 | 18 23 | 7 | 27 29 | 11 |
| | 40 | 5 30 | 2 | 11 28 | 5 | 18 30 | 7 | 27 40 | 11 |
| | 50 | 5 32 | 2 | 11 33 | 4 | 18 37 | 8 | 27 51 | 12 |
| 27 | 00 | 5 34 | 2 | 11 37 | 5 | 18 45 | 7 | 28 03 | 11 |
| | 10 | 5 36 | 3 | 11 42 | 5 | 18 52 | 7 | 28 14 | 11 |
| | 20 | 5 39 | 2 | 11 47 | 4 | 18 59 | 8 | 28 25 | 12 |
| | 30 | 5 41 | 2 | 11 51 | 5 | 19 07 | 8 | 28 37 | 11 |
| | 40 | 5 43 | 3 | 11 56 | 5 | 19 15 | 7 | 28 48 | 11 |
| | 50 | 5 46 | 2 | 12 01 | 4 | 19 22 | 8 | 28 59 | 12 |
| 28 | 00 | 5 48 | 2 | 12 05 | 5 | 19 30 | 7 | 29 11 | 11 |
| | 10 | 5 50 | 2 | 12 10 | 5 | 19 37 | 8 | 29 22 | 11 |
| | 20 | 5 52 | 3 | 12 15 | 5 | 19 45 | 8 | 29 33 | 12 |
| | 30 | 5 55 | 2 | 12 20 | 4 | 19 53 | 7 | 29 45 | 11 |
| | 40 | 5 57 | 3 | 12 24 | 5 | 20 00 | 8 | 29 56 | 11 |
| | 50 | 6 00 | 2 | 12 29 | 4 | 20 08 | 8 | 30 07 | 12 |
| 29 | 00 | 6 02 | 2 | 12 33 | 5 | 20 16 | 7 | 30 19 | 11 |
| | 10 | 6 04 | 3 | 12 38 | 5 | 20 23 | 8 | 30 30 | 12 |
| | 20 | 6 07 | 2 | 12 43 | 5 | 20 31 | 8 | 30 42 | 12 |
| | 30 | 6 09 | 2 | 12 48 | 5 | 20 39 | 7 | 30 54 | 11 |
| | 40 | 6 11 | 2 | 12 53 | 4 | 20 46 | 8 | 31 05 | 11 |
| | 50 | 6 13 | 3 | 12 57 | 5 | 20 54 | 8 | 31 16 | 12 |
| 30 | 00 | 6 16 | 2 | 13 20 | 5 | 21 02 | 7 | 31 28 | 11 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | diff. | Longit. | diff. | Longit | diff. |
| 25 | 10 | 38 56 | 16 | 62 48 | 27 | 130 47 | 56 |
| | 20 | 39 12 | 17 | 63 15 | 27 | 131 43 | 56 |
| | 30 | 39 29 | 16 | 63 42 | 26 | 132 39 | 56 |
| | 40 | 39 45 | 17 | 64 08 | 27 | 133 34 | 56 |
| | 50 | 39 62 | 17 | 64 35 | 27 | 134 30 | 56 |
| 26 | 00 | 40 19 | 16 | 65 02 | 27 | 135 26 | 56 |
| | 10 | 40 35 | 17 | 65 29 | 27 | 136 22 | 56 |
| | 20 | 40 52 | 17 | 65 56 | 27 | 137 18 | 56 |
| | 30 | 41 09 | 17 | 66 23 | 27 | 138 14 | 56 |
| | 40 | 41 26 | 17 | 66 50 | 27 | 139 10 | 56 |
| | 50 | 41 43 | 17 | 67 17 | 27 | 140 06 | 57 |
| 27 | 00 | 42 00 | 16 | 67 44 | 27 | 141 03 | 56 |
| | 10 | 42 16 | 17 | 68 11 | 27 | 141 59 | 57 |
| | 20 | 42 33 | 17 | 68 38 | 28 | 142 56 | 57 |
| | 30 | 42 50 | 16 | 69 06 | 27 | 143 53 | 56 |
| | 40 | 43 06 | 17 | 69 33 | 27 | 144 49 | 57 |
| | 50 | 43 23 | 17 | 70 00 | 28 | 145 46 | 57 |
| 28 | 00 | 43 40 | 17 | 70 28 | 27 | 146 43 | 57 |
| | 10 | 43a 57 | 17 | 70 55 | 27 | 147 40 | 57 |
| | 20 | 44 14 | 18 | 71 22 | 28 | 148 37 | 57 |
| | 30 | 44 32 | 17 | 71 50 | 27 | 149 34 | 57 |
| | 40 | 44 49 | 17 | 72 17 | 27 | 150 31 | 57 |
| | 50 | 45 06 | 17 | 72 44 | 28 | 151 28 | 58 |
| 29 | 00 | 45 23 | 17 | 73 12 | 27 | 152 26 | 58 |
| | 10 | 45 40 | 17 | 73 39 | 28 | 153 24 | 58 |
| | 20 | 45 57 | 17 | 74 07 | 28 | 154 22 | 58 |
| | 30 | 46 14 | 17 | 74 35 | 28 | 155 20 | 58 |
| | 40 | 46 31 | 17 | 75 03 | 28 | 156 18 | 58 |
| | 50 | 46 48 | 16 | 75 31 | 28 | 157 16 | 58 |
| 30 | 00 | 47 06 | 17 | 75 59 | 28 | 158 14 | 58 |

| Lattit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff. | Long. | dif. | Long. | dif. | Long. | dif. |
| 30 | 10 | 6 18 | 2 | 13 70 | 5 | 25 09 | 8 | 31 39 | 12 |
| | 20 | 6 20 | 2 | 13 12 | 4 | 25 17 | 8 | 31 51 | 12 |
| | 30 | 6 22 | 3 | 13 16 | 5 | 25 25 | 7 | 32 03 | 11 |
| | 40 | 6 25 | 2 | 13 21 | 5 | 25 32 | 8 | 32 14 | 12 |
| | 50 | 6 27 | 2 | 13 26 | 5 | 25 40 | 8 | 32 26 | 12 |
| 31 | 00 | 6 29 | 3 | 13 31 | 5 | 25 48 | 8 | 32 38 | 11 |
| | 10 | 6 32 | 2 | 13 36 | 5 | 25 56 | 8 | 32 49 | 12 |
| | 20 | 6 34 | 3 | 13 41 | 5 | 26 04 | 8 | 33 01 | 12 |
| | 30 | 6 37 | 2 | 13 46 | 5 | 26 12 | 7 | 33 13 | 11 |
| | 40 | 6 39 | 2 | 13 51 | 5 | 26 19 | 8 | 33 24 | 12 |
| | 50 | 6 41 | 2 | 13 56 | 4 | 26 27 | 8 | 33 36 | 12 |
| 32 | 00 | 6 43 | 3 | 14 00 | 5 | 26 35 | 8 | 33 48 | 12 |
| | 10 | 6 46 | 2 | 14 05 | 5 | 26 43 | 8 | 34 00 | 12 |
| | 20 | 6 48 | 3 | 14 10 | 5 | 26 51 | 8 | 34 12 | 12 |
| | 30 | 6 51 | 2 | 14 15 | 5 | 26 59 | 8 | 34 24 | 11 |
| | 40 | 6 53 | 2 | 14 20 | 4 | 27 07 | 8 | 34 35 | 12 |
| | 50 | 6 55 | 3 | 14 24 | 5 | 27 15 | 8 | 34 47 | 12 |
| 33 | 00 | 6 58 | 2 | 14 29 | 5 | 27 22 | 8 | 34 59 | 12 |
| | 10 | 7 00 | 3 | 14 34 | 5 | 27 31 | 8 | 35 11 | 12 |
| | 20 | 7 03 | 2 | 14 39 | 6 | 27 39 | 8 | 35 23 | 12 |
| | 30 | 7 05 | 3 | 14 45 | 5 | 27 47 | 8 | 35 35 | 12 |
| | 40 | 7 08 | 2 | 14 50 | 5 | 27 55 | 8 | 35 47 | 12 |
| | 50 | 7 10 | 2 | 14 55 | 5 | 28 03 | 8 | 35 59 | 12 |
| 34 | 00 | 7 12 | 2 | 15 00 | 5 | 28 11 | 8 | 36 11 | 12 |
| | 10 | 7 14 | 3 | 15 05 | 4 | 28 19 | 8 | 32 23 | 12 |
| | 20 | 7 17 | 3 | 15 09 | 5 | 28 27 | 8 | 36 35 | 13 |
| | 30 | 7 20 | 2 | 15 14 | 5 | 28 35 | 8 | 36 48 | 12 |
| | 40 | 7 22 | 2 | 15 19 | 5 | 28 43 | 8 | 37 00 | 12 |
| | 50 | 7 24 | 2 | 15 24 | 6 | 28 51 | 9 | 37 12 | 12 |
| 35 | 00 | 7 26 | 3 | 15 30 | 5 | 29 00 | 8 | 37 24 | 12 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| grd. | m. | Longit. | diff. | Longit. | diff | Longit. | diff. |
| 30 | 10 | 47 23 | 17 | 76 27 | 28 | 159 12 | 58 |
| | 20 | 47 40 | 18 | 76 55 | 28 | 160 10 | 58 |
| | 30 | 47 58 | 17 | 77 23 | 28 | 161 08 | 58 |
| | 40 | 48 15 | 17 | 77 51 | 28 | 162 06 | 59 |
| | 50 | 48 32 | 18 | 78 19 | 28 | 163 05 | 59 |
| 31 | 00 | 48 50 | 17 | 78 47 | 28 | 164 04 | 58 |
| | 10 | 49 07 | 18 | 79 15 | 28 | 165 02 | 59 |
| | 20 | 49 25 | 18 | 79 43 | 29 | 166 01 | 59 |
| | 30 | 49 43 | 17 | 80 12 | 28 | 167 00 | 59 |
| | 40 | 50 00 | 18 | 80 40 | 28 | 167 59 | 59 |
| | 50 | 50 18 | 18 | 81 08 | 29 | 168 58 | 60 |
| 32 | 00 | 50 36 | 17 | 81 37 | 28 | 169 58 | 59 |
| | 10 | 50 53 | 17 | 82 05 | 28 | 170 57 | 59 |
| | 20 | 51 10 | 18 | 82 33 | 29 | 171 56 | 59 |
| | 30 | 51 28 | 18 | 83 02 | 29 | 172 55 | 60 |
| | 40 | 51 46 | 18 | 83 31 | 29 | 173 55 | 60 |
| | 50 | 52 04 | 18 | 84 00 | 29 | 174 55 | 60 |
| 33 | 00 | 52 22 | 18 | 84 29 | 28 | 175 55 | 60 |
| | 10 | 52 40 | 18 | 84 57 | 29 | 176 55 | 60 |
| | 20 | 52 58 | 18 | 85 26 | 29 | 177 55 | 60 |
| | 30 | 53 16 | 18 | 85 55 | 29 | 178 55 | 60 |
| | 40 | 53 34 | 18 | 86 24 | 29 | 179 55 | 61 |
| | 50 | 53 52 | 18 | 86 53 | 29 | 180 56 | 61 |
| 34 | 00 | 54 10 | 18 | 87 22 | 29 | 181 57 | 60 |
| | 10 | 54 28 | 18 | 87 51 | 29 | 182 57 | 61 |
| | 20 | 54 46 | 18 | 88 20 | 30 | 183 58 | 61 |
| | 30 | 55 04 | 18 | 88 50 | 29 | 184 59 | 61 |
| | 40 | 55 22 | 18 | 89 19 | 29 | 186 00 | 61 |
| | 50 | 55 40 | 19 | 89 48 | 30 | 187 01 | 61 |
| 35 | 00 | 55 59 | 18 | 90 18 | 29 | 188 02 | 61 |

| Lacit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | dif. | Long. | dif. | Long. | dif. |
| 35 | 10 | 7 29 | 2 | 15 35 | 5 | 25 08 | 8 | 37 36 | 12 |
| | 20 | 7 31 | 3 | 15 40 | 5 | 25 16 | 8 | 37 48 | 13 |
| | 30 | 7 34 | 2 | 15 45 | 5 | 25 24 | 8 | 38 01 | 12 |
| | 40 | 7 36 | 3 | 15 50 | 5 | 25 32 | 8 | 38 13 | 12 |
| | 50 | 7 39 | 2 | 15 55 | 5 | 25 40 | 9 | 38 25 | 13 |
| 36 | 00 | 7 41 | 2 | 16 00 | 5 | 25 49 | 8 | 38 38 | 12 |
| | 10 | 7 43 | 3 | 16 05 | 6 | 25 57 | 8 | 38 50 | 12 |
| | 20 | 7 46 | 2 | 16 11 | 5 | 26 06 | 9 | 39 02 | 13 |
| | 30 | 7 48 | 3 | 16 16 | 5 | 26 14 | 8 | 39 15 | 12 |
| | 40 | 7 51 | 2 | 16 21 | 5 | 26 22 | 8 | 39 27 | 12 |
| | 50 | 7 53 | 2 | 16 26 | 5 | 26 30 | 8 | 39 39 | 13 |
| 37 | 00 | 7 55 | 3 | 16 31 | 5 | 26 38 | 8 | 39 52 | 12 |
| | 10 | 7 58 | 3 | 16 36 | 5 | 26 46 | 9 | 40 04 | 13 |
| | 20 | 8 01 | 2 | 16 41 | 6 | 26 55 | 9 | 40 17 | 13 |
| | 30 | 8 03 | 3 | 16 47 | 5 | 27 04 | 8 | 40 30 | 12 |
| | 40 | 8 06 | 2 | 16 52 | 5 | 27 12 | 8 | 40 42 | 13 |
| | 50 | 8 08 | 3 | 16 57 | 5 | 27 20 | 9 | 40 55 | 13 |
| 38 | 00 | 8 11 | 3 | 17 02 | 5 | 27 29 | 8 | 41 08 | 12 |
| | 10 | 8 14 | 2 | 17 07 | 5 | 27 37 | 9 | 41 20 | 13 |
| | 20 | 8 16 | 3 | 17 12 | 6 | 27 46 | 9 | 41 33 | 13 |
| | 30 | 8 19 | 2 | 17 18 | 6 | 27 55 | 8 | 41 46 | 13 |
| | 40 | 8 21 | 3 | 17 24 | 5 | 28 03 | 8 | 41 59 | 13 |
| | 50 | 8 24 | 2 | 17 29 | 5 | 28 11 | 9 | 42 12 | 13 |
| 39 | 00 | 8 26 | 3 | 17 34 | 5 | 28 20 | 8 | 42 25 | 13 |
| | 10 | 8 29 | 2 | 17 39 | 5 | 28 28 | 9 | 42 38 | 13 |
| | 20 | 8 31 | 3 | 17 44 | 5 | 28 37 | 9 | 42 51 | 13 |
| | 30 | 8 34 | 3 | 17 49 | 6 | 28 46 | 9 | 43 04 | 13 |
| | 40 | 8 37 | 2 | 17 55 | 6 | 28 55 | 9 | 43 17 | 13 |
| | 50 | 8 39 | 3 | 18 01 | 5 | 29 04 | 9 | 43 30 | 13 |
| 40 | 00 | 8 42 | 2 | 18 06 | 6 | 29 13 | 8 | 43 43 | 13 |

| Latit. | | Fift | | | Sixt | | | Seventh | | |
|---|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Longit | | diff. | Longit | | diff | Longit. | | diff. |
| 35 | 10 | 56 | 17 | 18 | 90 | 47 | 30 | 189 | 03 | 62 |
| | 20 | 56 | 35 | 19 | 91 | 17 | 30 | 190 | 05 | 62 |
| | 30 | 56 | 54 | 18 | 91 | 47 | 29 | 191 | 07 | 62 |
| | 40 | 57 | 12 | 18 | 92 | 16 | 30 | 192 | 09 | 62 |
| | 50 | 57 | 30 | 19 | 92 | 46 | 30 | 193 | 11 | 62 |
| 36 | 00 | 57 | 49 | 18 | 93 | 16 | 30 | 194 | 13 | 62 |
| | 10 | 58 | 07 | 19 | 93 | 46 | 30 | 195 | 15 | 62 |
| | 20 | 58 | 26 | 19 | 94 | 16 | 30 | 196 | 17 | 63 |
| | 30 | 58 | 45 | 18 | 94 | 46 | 30 | 197 | 20 | 62 |
| | 40 | 59 | 03 | 19 | 95 | 16 | 30 | 198 | 23 | 63 |
| | 50 | 59 | 22 | 19 | 95 | 46 | 30 | 199 | 25 | 63 |
| 37 | 00 | 59 | 41 | 18 | 96 | 16 | 30 | 200 | 28 | 63 |
| | 10 | 59 | 59 | 19 | 96 | 46 | 30 | 201 | 31 | 63 |
| | 20 | 60 | 18 | 19 | 97 | 16 | 30 | 202 | 34 | 63 |
| | 30 | 60 | 37 | 19 | 97 | 47 | 31 | 203 | 37 | 64 |
| | 40 | 60 | 56 | 19 | 98 | 17 | 30 | 204 | 41 | 64 |
| | 50 | 61 | 15 | 19 | 98 | 48 | 31 | 205 | 45 | 64 |
| 38 | 00 | 61 | 34 | 19 | 99 | 19 | 30 | 206 | 49 | 63 |
| | 10 | 61 | 53 | 19 | 99 | 49 | 31 | 207 | 52 | 64 |
| | 20 | 62 | 12 | 19 | 100 | 20 | 31 | 208 | 56 | 64 |
| | 30 | 62 | 31 | 19 | 100 | 51 | 31 | 210 | 00 | 64 |
| | 40 | 62 | 50 | 19 | 101 | 22 | 31 | 211 | 04 | 65 |
| | 50 | 63 | 09 | 20 | 101 | 53 | 31 | 212 | 09 | 65 |
| 39 | 00 | 63 | 29 | 19 | 102 | 24 | 31 | 213 | 14 | 64 |
| | 10 | 63 | 48 | 19 | 102 | 55 | 31 | 214 | 18 | 65 |
| | 20 | 64 | 07 | 20 | 103 | 26 | 31 | 215 | 23 | 65 |
| | 30 | 64 | 27 | 19 | 103 | 57 | 31 | 216 | 28 | 65 |
| | 40 | 64 | 46 | 19 | 104 | 28 | 31 | 217 | 33 | 66 |
| | 50 | 65 | 05 | 20 | 104 | 59 | 32 | 218 | 39 | 66 |
| 40 | 00 | 65 | 25 | 19 | 105 | 31 | 31 | 219 | 45 | 65 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | diff | Long. | diff | Long. | diff |
| 40 | 00 | 8 44 | 1 | 18 12 | 6 | 29 21 | 9 | 43 56 | 13 |
| | 20 | 8 47 | 2 | 18 18 | 5 | 29 30 | 9 | 44 09 | 13 |
| | 30 | 8 49 | 3 | 18 23 | 5 | 29 39 | 8 | 44 22 | 13 |
| | 40 | 8 52 | 2 | 18 28 | 6 | 29 47 | 9 | 44 35 | 13 |
| | 50 | 8 54 | 3 | 18 34 | 5 | 29 56 | 9 | 44 48 | 14 |
| 41 | 00 | 8 57 | 3 | 18 39 | 5 | 30 05 | 9 | 45 02 | 13 |
| | 10 | 9 00 | 3 | 18 44 | 6 | 30 14 | 9 | 45 15 | 13 |
| | 20 | 9 03 | 3 | 18 50 | 6 | 30 23 | 9 | 45 28 | 13 |
| | 30 | 9 06 | 2 | 18 56 | 5 | 30 32 | 9 | 45 41 | 13 |
| | 40 | 9 08 | 3 | 19 01 | 5 | 30 41 | 9 | 45 54 | 14 |
| | 50 | 9 11 | 2 | 19 06 | 6 | 30 50 | 9 | 46 08 | 14 |
| 42 | 00 | 9 13 | 3 | 19 12 | 6 | 30 59 | 9 | 46 22 | 13 |
| | 10 | 9 16 | 2 | 19 18 | 5 | 31 08 | 9 | 46 35 | 13 |
| | 20 | 9 18 | 3 | 19 23 | 6 | 31 17 | 9 | 46 48 | 14 |
| | 30 | 9 21 | 3 | 19 29 | 6 | 31 26 | 9 | 47 02 | 13 |
| | 40 | 9 24 | 3 | 19 35 | 5 | 31 35 | 9 | 47 15 | 14 |
| | 50 | 9 27 | 2 | 19 40 | 6 | 31 44 | 9 | 47 29 | 14 |
| 43 | 00 | 9 30 | 3 | 19 46 | 6 | 31 53 | 9 | 47 43 | 13 |
| | 10 | 9 32 | 3 | 19 52 | 5 | 32 02 | 9 | 47 56 | 14 |
| | 20 | 9 35 | 2 | 19 57 | 6 | 32 11 | 9 | 48 10 | 14 |
| | 30 | 9 37 | 3 | 20 03 | 6 | 32 20 | 9 | 48 24 | 14 |
| | 40 | 9 40 | 3 | 20 09 | 6 | 32 29 | 9 | 48 38 | 14 |
| | 50 | 9 43 | 3 | 20 15 | 5 | 32 38 | 10 | 48 52 | 14 |
| 44 | 00 | 9 46 | 2 | 20 20 | 6 | 32 48 | 9 | 49 06 | 14 |
| | 10 | 9 48 | 3 | 20 26 | 6 | 32 57 | 9 | 49 20 | 14 |
| | 20 | 9 51 | 3 | 20 32 | 6 | 33 06 | 10 | 49 34 | 14 |
| | 30 | 9 54 | 3 | 20 38 | 6 | 33 16 | 9 | 49 48 | 14 |
| | 40 | 9 57 | 3 | 20 44 | 6 | 33 25 | 9 | 50 02 | 14 |
| | 50 | 10 00 | 3 | 20 50 | 5 | 33 34 | 10 | 50 16 | 14 |
| 45 | 00 | 10 03 | 3 | 20 55 | 6 | 33 44 | 9 | 50 30 | 14 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | diff | Longit. | diff | Longit. | diff |
| 40 | 10 | 65 44 | 20 | 106 02 | 32 | 220 50 | 66 |
| | 20 | 66 08 | 20 | 106 34 | 32 | 221 56 | 66 |
| | 30 | 66 24 | 19 | 107 06 | 32 | 223 02 | 66 |
| | 40 | 66 44 | 20 | 107 38 | 32 | 224 08 | 67 |
| | 50 | 67 03 | 20 | 108 10 | 32 | 225 15 | 67 |
| 41 | 00 | 67 23 | 20 | 108 42 | 32 | 226 22 | 66 |
| | 10 | 67 43 | 20 | 109 14 | 32 | 227 28 | 67 |
| | 20 | 68 03 | 20 | 109 46 | 32 | 228 35 | 67 |
| | 30 | 68 23 | 20 | 110 18 | 32 | 229 42 | 67 |
| | 40 | 68 43 | 20 | 110 50 | 32 | 230 49 | 67 |
| | 50 | 69 03 | 20 | 111 22 | 33 | 231 56 | 68 |
| 42 | 00 | 69 23 | 20 | 111 55 | 32 | 233 04 | 68 |
| | 10 | 69 43 | 20 | 112 27 | 33 | 234 12 | 68 |
| | 20 | 70 03 | 20 | 113 00 | 33 | 235 20 | 68 |
| | 30 | 70 23 | 20 | 113 33 | 32 | 236 28 | 68 |
| | 40 | 70 43 | 21 | 114 05 | 33 | 237 36 | 68 |
| | 50 | 71 04 | 21 | 114 38 | 33 | 238 44 | 69 |
| 43 | 00 | 71 25 | 20 | 115 11 | 33 | 239 53 | 69 |
| | 10 | 71 45 | 20 | 115 44 | 33 | 241 02 | 69 |
| | 20 | 72 05 | 21 | 116 17 | 34 | 242 11 | 69 |
| | 30 | 72 26 | 20 | 116 51 | 33 | 243 20 | 69 |
| | 40 | 72 46 | 21 | 117 24 | 33 | 244 29 | 70 |
| | 50 | 73 07 | 21 | 117 57 | 34 | 245 39 | 70 |
| 44 | 00 | 73 28 | 21 | 118 31 | 34 | 246 49 | 70 |
| | 10 | 73 49 | 21 | 119 05 | 34 | 247 59 | 70 |
| | 20 | 74 10 | 21 | 119 39 | 34 | 249 09 | 70 |
| | 30 | 74 31 | 20 | 120 13 | 34 | 250 19 | 71 |
| | 40 | 74 51 | 21 | 120 47 | 34 | 251 30 | 71 |
| | 50 | 75 12 | 22 | 121 21 | 34 | 252 41 | 71 |
| 45 | 00 | 75 34 | 21 | 121 55 | 34 | 253 52 | 71 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | diff | Long. | diff | Long. | diff |
| 45 | 10 | 10 06 | 2 | 21 01 | 6 | 33 53 | 10 | 50 44 | 14 |
| | 20 | 10 08 | 3 | 21 07 | 6 | 34 03 | 10 | 50 58 | 14 |
| | 30 | 10 11 | 3 | 21 13 | 6 | 34 13 | 09 | 51 12 | 14 |
| | 40 | 10 14 | 3 | 21 19 | 5 | 34 22 | 09 | 51 26 | 15 |
| | 50 | 10 17 | 3 | 21 24 | 6 | 34 31 | 10 | 51 41 | 15 |
| 46 | 00 | 10 20 | 2 | 21 30 | 6 | 34 41 | 10 | 51 56 | 14 |
| | 10 | 10 22 | 3 | 21 36 | 6 | 34 51 | 10 | 52 10 | 14 |
| | 20 | 10 25 | 3 | 21 42 | 6 | 35 01 | 10 | 52 24 | 15 |
| | 30 | 10 28 | 3 | 21 48 | 6 | 35 11 | 09 | 52 39 | 14 |
| | 40 | 10 31 | 3 | 21 54 | 6 | 35 20 | 10 | 52 53 | 14 |
| | 50 | 10 34 | 3 | 22 00 | 7 | 35 30 | 10 | 53 07 | 15 |
| 47 | 00 | 10 37 | 3 | 22 07 | 6 | 35 40 | 09 | 53 22 | 15 |
| | 10 | 10 40 | 3 | 22 13 | 6 | 35 49 | 10 | 53 37 | 15 |
| | 20 | 10 43 | 2 | 22 19 | 6 | 35 59 | 10 | 53 52 | 15 |
| | 30 | 10 45 | 3 | 22 25 | 6 | 36 09 | 10 | 54 07 | 14 |
| | 40 | 10 48 | 3 | 22 31 | 6 | 36 19 | 10 | 54 21 | 15 |
| | 50 | 10 51 | 4 | 22 37 | 6 | 36 29 | 10 | 54 36 | 15 |
| 48 | 00 | 10 55 | 3 | 22 43 | 6 | 36 39 | 10 | 54 51 | 15 |
| | 10 | 10 58 | 3 | 22 49 | 7 | 36 49 | 10 | 55 06 | 15 |
| | 20 | 11 01 | 3 | 22 56 | 6 | 36 59 | 10 | 55 21 | 15 |
| | 30 | 11 04 | 3 | 23 02 | 6 | 37 09 | 10 | 55 36 | 15 |
| | 40 | 11 07 | 3 | 23 08 | 7 | 37 19 | 10 | 55 51 | 15 |
| | 50 | 11 10 | 3 | 23 15 | 6 | 37 23 | 11 | 56 06 | 16 |
| 49 | 00 | 11 13 | 3 | 23 21 | 6 | 37 40 | 10 | 56 22 | 15 |
| | 10 | 11 16 | 3 | 23 27 | 6 | 37 50 | 10 | 56 37 | 15 |
| | 20 | 11 19 | 3 | 23 33 | 6 | 38 00 | 10 | 56 52 | 16 |
| | 30 | 11 22 | 3 | 23 39 | 6 | 38 10 | 10 | 57 08 | 15 |
| | 40 | 11 25 | 3 | 23 45 | 7 | 38 20 | 10 | 57 32 | 15 |
| | 50 | 11 28 | 3 | 23 52 | 7 | 38 30 | 11 | 57 38 | 16 |
| 50 | 00 | 11 31 | 3 | 23 59 | 6 | 38 41 | 10 | 57 54 | 15 |

| Latit. | | Fift | | | Sixt | | | Seventh | | |
|---|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Longit | | diff. | Longit | | diff | Longit. | | diff. |
| 45 | 10 | 75 | 55 | 21 | 122 | 29 | 34 | 255 | 03 | 71 |
| | 20 | 76 | 16 | 22 | 123 | 03 | 34 | 256 | 14 | 72 |
| | 30 | 76 | 38 | 21 | 123 | 37 | 34 | 257 | 26 | 72 |
| | 40 | 76 | 59 | 22 | 124 | 11 | 35 | 258 | 38 | 72 |
| | 50 | 77 | 21 | 22 | 124 | 46 | 35 | 259 | 50 | 72 |
| 46 | 00 | 77 | 43 | 21 | 125 | 21 | 35 | 261 | 02 | 72 |
| | 10 | 78 | 04 | 21 | 125 | 56 | 35 | 262 | 14 | 73 |
| | 20 | 78 | 25 | 22 | 126 | 31 | 35 | 263 | 27 | 73 |
| | 30 | 78 | 47 | 22 | 127 | 06 | 35 | 264 | 40 | 73 |
| | 40 | 79 | 09 | 22 | 127 | 41 | 35 | 265 | 53 | 73 |
| | 50 | 79 | 31 | 22 | 128 | 16 | 36 | 267 | 06 | 74 |
| 47 | 00 | 79 | 53 | 22 | 128 | 52 | 35 | 268 | 20 | 74 |
| | 10 | 80 | 15 | 22 | 129 | 27 | 35 | 269 | 34 | 74 |
| | 20 | 80 | 37 | 22 | 130 | 02 | 36 | 270 | 48 | 75 |
| | 30 | 80 | 59 | 22 | 130 | 38 | 36 | 272 | 03 | 74 |
| | 40 | 81 | 21 | 22 | 131 | 14 | 36 | 273 | 17 | 75 |
| | 50 | 81 | 43 | 22 | 131 | 50 | 36 | 274 | 32 | 75 |
| 48 | 00 | 82 | 05 | 22 | 132 | 26 | 36 | 275 | 47 | 75 |
| | 10 | 82 | 27 | 23 | 133 | 02 | 36 | 277 | 02 | 75 |
| | 20 | 82 | 50 | 23 | 133 | 38 | 37 | 278 | 17 | 76 |
| | 30 | 83 | 13 | 22 | 134 | 15 | 36 | 279 | 33 | 76 |
| | 40 | 83 | 35 | 23 | 134 | 51 | 37 | 280 | 49 | 77 |
| | 50 | 83 | 58 | 23 | 135 | 28 | 37 | 282 | 06 | 77 |
| 49 | 00 | 84 | 21 | 23 | 136 | 05 | 36 | 283 | 23 | 76 |
| | 10 | 84 | 44 | 23 | 136 | 41 | 37 | 284 | 39 | 77 |
| | 20 | 85 | 07 | 23 | 137 | 18 | 37 | 285 | 56 | 77 |
| | 30 | 85 | 30 | 23 | 137 | 55 | 37 | 287 | 13 | 78 |
| | 40 | 85 | 53 | 23 | 138 | 32 | 38 | 288 | 31 | 78 |
| | 50 | 86 | 16 | 24 | 139 | 10 | 38 | 289 | 49 | 78 |
| 50 | 00 | 86 | 42 | 23 | 139 | 48 | 37 | 291 | 07 | 78 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | dif. | Long. | dif. | Long. | dif. |
| 50 | 10 | 11 34 | 3 | 24 06 | 7 | 38 51 | 11 | 58 09 | 16 |
| | 20 | 11 37 | 3 | 24 12 | 7 | 39 02 | 11 | 58 25 | 16 |
| | 30 | 11 40 | 4 | 24 19 | 7 | 39 13 | 10 | 58 41 | 16 |
| | 40 | 11 44 | 3 | 24 26 | 6 | 39 23 | 10 | 58 56 | 15 |
| | 50 | 11 47 | 3 | 24 32 | 6 | 39 33 | 11 | 59 12 | 16 |
| 51 | 00 | 11 50 | 3 | 24 38 | 7 | 39 44 | 10 | 59 28 | 16 |
| | 10 | 11 53 | 3 | 24 45 | 6 | 39 54 | 11 | 59 44 | 16 |
| | 20 | 11 56 | 4 | 24 51 | 7 | 40 05 | 11 | 60 00 | 16 |
| | 30 | 12 00 | 3 | 24 58 | 7 | 40 16 | 11 | 60 16 | 16 |
| | 40 | 12 03 | 3 | 25 05 | 7 | 40 27 | 11 | 60 32 | 16 |
| | 50 | 12 06 | 3 | 25 12 | 6 | 40 38 | 11 | 60 48 | 17 |
| 52 | 00 | 12 09 | 3 | 25 18 | 7 | 40 49 | 11 | 61 05 | 16 |
| | 10 | 12 12 | 3 | 25 25 | 7 | 41 00 | 11 | 61 21 | 16 |
| | 20 | 12 15 | 4 | 25 32 | 7 | 41 11 | 11 | 61 37 | 17 |
| | 30 | 12 19 | 3 | 25 39 | 6 | 41 22 | 11 | 61 54 | 16 |
| | 40 | 12 22 | 3 | 25 45 | 7 | 41 33 | 11 | 62 10 | 17 |
| | 50 | 12 25 | 3 | 25 52 | 7 | 41 44 | 11 | 62 27 | 17 |
| 53 | 00 | 12 28 | 4 | 25 59 | 7 | 41 55 | 11 | 62 44 | 16 |
| | 10 | 12 32 | 4 | 26 06 | 7 | 42 06 | 11 | 63 00 | 17 |
| | 20 | 12 36 | 3 | 26 13 | 7 | 42 17 | 11 | 63 17 | 17 |
| | 30 | 12 39 | 3 | 26 20 | 7 | 42 28 | 11 | 63 34 | 16 |
| | 40 | 12 42 | 3 | 26 27 | 7 | 42 39 | 11 | 63 50 | 17 |
| | 50 | 12 45 | 4 | 26 34 | 7 | 42 50 | 12 | 64 07 | 17 |
| 54 | 00 | 12 49 | 3 | 26 41 | 7 | 43 02 | 11 | 64 24 | 17 |
| | 10 | 12 52 | 4 | 26 48 | 7 | 43 41 | 11 | 64 41 | 17 |
| | 20 | 12 56 | 3 | 26 55 | 7 | 43 24 | 12 | 64 58 | 18 |
| | 30 | 12 59 | 3 | 27 02 | 7 | 43 36 | 11 | 65 16 | 17 |
| | 40 | 13 02 | 4 | 27 09 | 7 | 43 47 | 12 | 65 33 | 17 |
| | 50 | 13 06 | 4 | 27 16 | 7 | 43 59 | 12 | 65 50 | 18 |
| 55 | 00 | 13 10 | 3 | 27 23 | 7 | 43 11 | 11 | 66 08 | 17 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | diff | Longit | diff | Longit | diff. |
| 50 | 10 | 87 03 | 23 | 140 25 | 38 | 292 25 | 78 |
| | 20 | 87 26 | 24 | 141 03 | 38 | 293 43 | 79 |
| | 30 | 87 50 | 23 | 141 41 | 38 | 295 02 | 79 |
| | 40 | 88 13 | 24 | 142 19 | 38 | 296 21 | 80 |
| | 50 | 88 37 | 24 | 142 57 | 38 | 297 41 | 80 |
| 51 | 00 | 89 01 | 23 | 143 35 | 38 | 299 01 | 80 |
| | 10 | 89 24 | 24 | 144 13 | 39 | 300 21 | 80 |
| | 20 | 89 48 | 24 | 144 52 | 39 | 301 41 | 81 |
| | 30 | 90 12 | 24 | 145 31 | 39 | 303 02 | 81 |
| | 40 | 90 36 | 24 | 146 10 | 39 | 304 23 | 81 |
| | 50 | 91 00 | 25 | 146 49 | 39 | 305 44 | 81 |
| 52 | 00 | 91 25 | 24 | 147 28 | 39 | 307 05 | 82 |
| | 10 | 91 49 | 24 | 148 07 | 39 | 308 27 | 82 |
| | 20 | 92 13 | 25 | 148 46 | 40 | 309 49 | 83 |
| | 30 | 92 38 | 24 | 149 26 | 40 | 311 12 | 82 |
| | 40 | 93 02 | 25 | 150 06 | 40 | 312 34 | 83 |
| | 50 | 93 27 | 25 | 150 46 | 40 | 313 57 | 83 |
| 53 | 00 | 93 52 | 25 | 151 26 | 40 | 315 20 | 84 |
| | 10 | 94 17 | 25 | 152 06 | 40 | 316 44 | 84 |
| | 20 | 94 42 | 26 | 152 46 | 41 | 318 08 | 85 |
| | 30 | 95 08 | 25 | 153 27 | 40 | 319 33 | 84 |
| | 40 | 95 33 | 25 | 154 07 | 41 | 320 57 | 85 |
| | 50 | 95 58 | 25 | 154 48 | 41 | 322 22 | 85 |
| 54 | 00 | 96 23 | 25 | 155 29 | 41 | 323 47 | 86 |
| | 10 | 96 48 | 26 | 156 10 | 41 | 325 13 | 86 |
| | 20 | 97 14 | 26 | 156 51 | 42 | 326 39 | 87 |
| | 30 | 97 40 | 26 | 157 33 | 42 | 328 06 | 87 |
| | 40 | 98 06 | 26 | 158 15 | 42 | 329 33 | 87 |
| | 50 | 98 32 | 26 | 158 57 | 42 | 331 00 | 87 |
| 55 | 00 | 98 58 | 26 | 159 39 | 42 | 332 27 | 88 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | diff | Long. | diff | Long. | diff |
| 55 | 10 | 13 13 | 3 | 27 30 | 8 | 44 22 | 12 | 66 25 | 17 |
| | 20 | 13 16 | 4 | 27 38 | 7 | 44 34 | 12 | 66 42 | 18 |
| | 30 | 13 20 | 3 | 27 45 | 7 | 44 46 | 12 | 67 00 | 18 |
| | 40 | 13 23 | 4 | 27 52 | 8 | 44 58 | 12 | 67 18 | 18 |
| | 50 | 13 27 | 3 | 28 00 | 7 | 45 10 | 12 | 67 36 | 18 |
| 56 | 00 | 13 30 | 3 | 28 07 | 8 | 45 22 | 12 | 67 54 | 18 |
| | 10 | 13 33 | 4 | 28 15 | 8 | 45 34 | 12 | 68 12 | 18 |
| | 20 | 13 37 | 4 | 28 23 | 7 | 45 46 | 12 | 68 30 | 18 |
| | 30 | 13 41 | 3 | 28 30 | 7 | 45 58 | 12 | 68 48 | 18 |
| | 40 | 13 44 | 4 | 28 37 | 8 | 46 10 | 12 | 69 06 | 18 |
| | 50 | 13 48 | 4 | 28 45 | 7 | 46 22 | 13 | 69 24 | 18 |
| 57 | 00 | 13 52 | 4 | 28 52 | 8 | 46 35 | 12 | 69 42 | 18 |
| | 10 | 13 56 | 4 | 29 00 | 8 | 46 47 | 12 | 70 00 | 19 |
| | 20 | 14 00 | 3 | 29 08 | 7 | 46 59 | 13 | 70 19 | 19 |
| | 30 | 14 03 | 4 | 29 15 | 8 | 47 12 | 12 | 70 38 | 18 |
| | 40 | 14 07 | 4 | 29 23 | 8 | 47 24 | 12 | 70 56 | 19 |
| | 50 | 14 11 | 3 | 29 31 | 7 | 47 36 | 13 | 71 15 | 19 |
| 58 | 00 | 14 14 | 4 | 29 38 | 8 | 47 49 | 12 | 71 34 | 19 |
| | 10 | 14 18 | 4 | 29 46 | 8 | 48 01 | 13 | 71 53 | 19 |
| | 20 | 14 22 | 4 | 29 54 | 8 | 48 14 | 13 | 72 12 | 19 |
| | 30 | 14 26 | 3 | 30 02 | 8 | 48 27 | 13 | 72 31 | 19 |
| | 40 | 14 29 | 4 | 30 10 | 8 | 48 40 | 13 | 72 50 | 19 |
| | 50 | 14 33 | 4 | 30 18 | 8 | 48 53 | 13 | 73 09 | 20 |
| 59 | 00 | 14 37 | 4 | 30 26 | 9 | 49 06 | 13 | 73 29 | 19 |
| | 10 | 14 41 | 3 | 30 35 | 8 | 49 19 | 13 | 73 48 | 19 |
| | 20 | 14 44 | 4 | 30 43 | 8 | 49 32 | 13 | 74 07 | 20 |
| | 30 | 14 48 | 4 | 30 51 | 8 | 49 45 | 13 | 74 27 | 20 |
| | 40 | 14 52 | 4 | 30 59 | 8 | 49 58 | 13 | 74 47 | 20 |
| | 50 | 14 56 | 4 | 31 07 | 8 | 50 11 | 14 | 75 07 | 20 |
| 60 | 00 | 15 00 | 4 | 31 15 | 8 | 50 25 | 13 | 75 27 | 20 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | diff | Longit. | diff | Longit | diff. |
| 55 | 10 | 99 24 | 26 | 160 21 | 42 | 333 55 | 88 |
| | 20 | 99 50 | 27 | 161 03 | 43 | 335 23 | 89 |
| | 30 | 100 17 | 26 | 161 46 | 43 | 336 52 | 89 |
| | 40 | 100 43 | 27 | 162 29 | 43 | 338 21 | 89 |
| | 50 | 101 10 | 27 | 163 12 | 43 | 339 50 | 89 |
| 56 | 00 | 101 37 | 27 | 163 55 | 43 | 341 19 | 90 |
| | 10 | 102 04 | 27 | 164 38 | 43 | 342 49 | 91 |
| | 20 | 102 31 | 27 | 165 21 | 44 | 344 20 | 91 |
| | 30 | 102 58 | 27 | 166 05 | 44 | 345 51 | 91 |
| | 40 | 103 25 | 27 | 166 49 | 44 | 347 22 | 92 |
| | 50 | 103 52 | 27 | 167 33 | 45 | 348 54 | 92 |
| 57 | 00 | 104 19 | 27 | 168 18 | 44 | 350 26 | 93 |
| | 10 | 104 46 | 28 | 169 02 | 44 | 351 59 | 93 |
| | 20 | 105 14 | 28 | 169 46 | 45 | 353 32 | 93 |
| | 30 | 105 42 | 28 | 170 31 | 45 | 355 05 | 94 |
| | 40 | 106 10 | 28 | 171 16 | 45 | 356 39 | 94 |
| | 50 | 106 38 | 29 | 172 01 | 46 | 358 13 | 94 |
| 58 | 00 | 107 07 | 28 | 172 49 | 45 | 359 47 | 95 |
| | 10 | 107 35 | 28 | 173 32 | 46 | 361 22 | 96 |
| | 20 | 108 03 | 29 | 174 18 | 46 | 362 58 | 96 |
| | 30 | 108 32 | 28 | 175 04 | 46 | 364 34 | 97 |
| | 40 | 109 00 | 29 | 175 50 | 47 | 366 11 | 97 |
| | 50 | 109 29 | 29 | 176 37 | 47 | 367 48 | 97 |
| 59 | 00 | 109 58 | 29 | 177 24 | 47 | 369 25 | 98 |
| | 10 | 110 27 | 29 | 178 11 | 47 | 371 03 | 98 |
| | 20 | 110 56 | 30 | 178 58 | 48 | 372 41 | 99 |
| | 30 | 111 26 | 29 | 179 46 | 48 | 374 20 | 99 |
| | 40 | 111 55 | 30 | 180 34 | 48 | 375 59 | 100 |
| | 50 | 112 25 | 30 | 181 22 | 48 | 377 39 | 100 |
| 60 | 00 | 112 55 | 30 | 182 10 | 48 | 379 19 | 101 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | diff | Long. | diff | Long. | diff |
| 60 | 10 | 15 04 | 4 | 31 24 | 8 | 50 38 | 13 | 75 47 | 20 |
| | 20 | 15 08 | 4 | 31 32 | 9 | 50 51 | 14 | 76 07 | 20 |
| | 30 | 15 12 | 4 | 31 41 | 8 | 51 05 | 14 | 76 27 | 20 |
| | 40 | 15 16 | 4 | 31 49 | 8 | 51 19 | 13 | 76 47 | 21 |
| | 50 | 15 20 | 5 | 31 57 | 8 | 51 33 | 14 | 77 08 | 21 |
| 61 | 00 | 15 25 | 4 | 32 05 | 9 | 51 47 | 13 | 77 29 | 20 |
| | 10 | 15 29 | 4 | 32 14 | 9 | 52 00 | 14 | 77 49 | 21 |
| | 20 | 15 33 | 4 | 32 23 | 9 | 52 14 | 14 | 78 10 | 21 |
| | 30 | 15 37 | 4 | 32 32 | 9 | 52 28 | 14 | 78 31 | 21 |
| | 40 | 15 41 | 5 | 32 41 | 8 | 52 42 | 14 | 78 52 | 21 |
| | 50 | 15 46 | 4 | 32 49 | 9 | 52 56 | 15 | 79 13 | 21 |
| 62 | 00 | 15 50 | 4 | 32 58 | 9 | 53 11 | 14 | 79 34 | 21 |
| | 10 | 15 54 | 4 | 33 07 | 9 | 53 25 | 14 | 79 55 | 22 |
| | 20 | 15 58 | 5 | 33 16 | 9 | 53 39 | 14 | 80 17 | 22 |
| | 30 | 16 43 | 4 | 33 25 | 9 | 53 53 | 15 | 80 39 | 22 |
| | 40 | 16 07 | 5 | 33 34 | 9 | 54 08 | 15 | 81 01 | 22 |
| | 50 | 16 12 | 4 | 33 43 | 9 | 54 22 | 15 | 81 23 | 22 |
| 3 | 00 | 16 16 | 4 | 33 52 | 9 | 54 38 | 14 | 81 45 | 22 |
| | 10 | 16 20 | 5 | 34 01 | 9 | 54 52 | 15 | 82 07 | 22 |
| | 20 | 16 25 | 4 | 34 10 | 9 | 55 07 | 15 | 82 29 | 22 |
| | 30 | 16 29 | 5 | 34 19 | 9 | 55 22 | 15 | 82 51 | 22 |
| | 40 | 16 34 | 4 | 34 28 | 10 | 55 37 | 15 | 83 13 | 23 |
| | 50 | 16 38 | 5 | 34 38 | 9 | 55 52 | 15 | 83 36 | 23 |
| 64 | 00 | 16 43 | 4 | 34 47 | 10 | 56 07 | 15 | 83 59 | 23 |
| | 10 | 16 47 | 5 | 34 57 | 10 | 56 22 | 15 | 84 22 | 23 |
| | 20 | 16 52 | 4 | 35 07 | 9 | 56 37 | 16 | 84 45 | 23 |
| | 30 | 16 56 | 5 | 35 16 | 10 | 56 53 | 16 | 85 08 | 23 |
| | 40 | 17 01 | 4 | 35 26 | 10 | 57 09 | 16 | 85 31 | 23 |
| | 50 | 17 05 | 5 | 35 36 | 9 | 57 25 | 16 | 85 54 | 24 |
| 65 | 0 | 17 10 | 5 | 35 45 | 10 | 57 41 | 15 | 86 18 | 24 |

| Latit. | | Fift | | Sixt | | Seventh | |
|---|---|---|---|---|---|---|---|
| gr. | m. | Longit | diff. | Longit. | diff. | Longit. | diff. |
| 60 | 10 | 113 25 | 30 | 182 58 | 48 | 381 00 | 101 |
| | 20 | 113 55 | 31 | 183 46 | 49 | 382 41 | 102 |
| | 30 | 114 26 | 30 | 184 35 | 49 | 384 23 | 102 |
| | 40 | 114 56 | 31 | 185 24 | 50 | 386 05 | 103 |
| | 50 | 115 27 | 31 | 186 14 | 50 | 387 48 | 103 |
| 61 | 00 | 115 58 | 31 | 187 04 | 50 | 389 31 | 104 |
| | 10 | 116 29 | 31 | 187 54 | 50 | 391 15 | 105 |
| | 20 | 117 00 | 31 | 188 44 | 50 | 393 00 | 105 |
| | 30 | 117 31 | 31 | 189 34 | 51 | 394 45 | 106 |
| | 40 | 118 02 | 31 | 190 25 | 51 | 396 31 | 106 |
| | 50 | 118 33 | 32 | 191 16 | 51 | 398 17 | 107 |
| 62 | 00 | 119 05 | 32 | 192 07 | 51 | 400 04 | 108 |
| | 10 | 119 37 | 32 | 192 58 | 52 | 401 52 | 108 |
| | 20 | 120 09 | 33 | 193 50 | 52 | 403 40 | 108 |
| | 30 | 120 42 | 32 | 194 42 | 52 | 405 28 | 109 |
| | 40 | 121 14 | 33 | 195 34 | 53 | 407 17 | 109 |
| | 50 | 121 47 | 33 | 199 27 | 53 | 409 06 | 110 |
| 63 | 00 | 122 20 | 33 | 197 20 | 53 | 410 56 | 112 |
| | 10 | 122 53 | 33 | 198 13 | 54 | 412 48 | 112 |
| | 20 | 123 26 | 34 | 199 07 | 54 | 414 40 | 112 |
| | 30 | 124 00 | 33 | 200 01 | 54 | 416 32 | 113 |
| | 40 | 124 33 | 34 | 200 55 | 55 | 418 25 | 114 |
| | 50 | 125 07 | 34 | 201 50 | 55 | 420 19 | 114 |
| 64 | 00 | 125 41 | 34 | 202 45 | 55 | 422 13 | 115 |
| | 10 | 126 15 | 35 | 203 40 | 56 | 424 08 | 116 |
| | 20 | 126 50 | 35 | 204 36 | 56 | 426 04 | 116 |
| | 30 | 127 25 | 35 | 205 32 | 56 | 428 00 | 117 |
| | 40 | 128 00 | 35 | 206 28 | 57 | 429 57 | 118 |
| | 50 | 128 35 | 35 | 207 25 | 57 | 431 55 | 118 |
| 65 | 00 | 129 10 | 35 | 208 22 | 57 | 433 53 | 120 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | dif. | Long. | dif. | Long. | diff |
| 65 | 10 | 17 15 | 4 | 35 55 | 10 | 57 56 | 16 | 86 42 | 24 |
| | 20 | 17 19 | 5 | 36 05 | 10 | 58 12 | 16 | 87 06 | 24 |
| | 30 | 17 24 | 5 | 36 15 | 10 | 58 28 | 16 | 87 30 | 24 |
| | 40 | 17 29 | 5 | 36 25 | 10 | 58 44 | 16 | 87 54 | 24 |
| | 50 | 17 34 | 5 | 36 35 | 10 | 59 00 | 17 | 88 18 | 25 |
| 66 | 00 | 17 39 | 4 | 36 45 | 10 | 59 17 | 16 | 88 43 | 24 |
| | 10 | 17 43 | 5 | 36 55 | 11 | 59 33 | 16 | 89 07 | 25 |
| | 20 | 17 48 | 5 | 37 06 | 10 | 59 49 | 17 | 89 32 | 25 |
| | 30 | 17 53 | 5 | 37 16 | 10 | 60 06 | 17 | 89 57 | 25 |
| | 40 | 17 58 | 5 | 37 26 | 11 | 60 23 | 17 | 90 22 | 25 |
| | 50 | 18 03 | 5 | 37 37 | 11 | 60 40 | 18 | 90 47 | 26 |
| 67 | 00 | 18 08 | 5 | 37 48 | 10 | 60 58 | 17 | 91 13 | 26 |
| | 10 | 18 13 | 6 | 37 58 | 11 | 61 15 | 17 | 91 39 | 26 |
| | 20 | 18 19 | 5 | 38 09 | 11 | 61 32 | 17 | 92 05 | 26 |
| | 30 | 18 24 | 6 | 38 20 | 11 | 61 49 | 18 | 92 31 | 26 |
| | 40 | 18 30 | 5 | 38 31 | 11 | 62 07 | 18 | 92 57 | 26 |
| | 50 | 18 35 | 5 | 38 42 | 11 | 62 25 | 18 | 93 23 | 27 |
| 68 | 00 | 18 40 | 5 | 38 53 | 11 | 62 43 | 17 | 93 50 | 27 |
| | 10 | 18 45 | 6 | 39 04 | 11 | 63 00 | 18 | 94 17 | 27 |
| | 20 | 18 51 | 6 | 39 15 | 11 | 63 18 | 18 | 94 44 | 27 |
| | 30 | 18 57 | 5 | 39 26 | 12 | 63 36 | 18 | 95 11 | 27 |
| | 40 | 19 02 | 5 | 39 38 | 11 | 63 54 | 19 | 95 38 | 28 |
| | 50 | 19 07 | 6 | 39 49 | 11 | 64 13 | 19 | 96 06 | 28 |
| 69 | 00 | 19 13 | 5 | 40 00 | 12 | 64 32 | 18 | 96 34 | 28 |
| | 10 | 19 18 | 6 | 40 12 | 12 | 64 50 | 19 | 97 02 | 28 |
| | 20 | 19 24 | 5 | 40 24 | 11 | 65 09 | 19 | 97 30 | 28 |
| | 30 | 19 29 | 6 | 40 35 | 12 | 65 28 | 19 | 97 58 | 29 |
| | 40 | 19 35 | 6 | 40 47 | 11 | 65 47 | 19 | 98 27 | 29 |
| | 50 | 19 41 | 6 | 40 58 | 12 | 66 06 | 20 | 98 56 | 29 |
| 70 | 00 | 19 47 | 6 | 41 10 | 12 | 66 26 | 20 | 99 25 | 29 |

| Latit. | | Fift | | | Sixt | | | Seventh | | |
|---|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Longit. | | diff. | Longit. | | diff. | Longit. | | diff. |
| 65 | 10 | 129 | 45 | 36 | 209 | 19 | 58 | 435 | 53 | 120 |
| | 20 | 130 | 21 | 36 | 210 | 17 | 58 | 437 | 53 | 121 |
| | 30 | 130 | 57 | 36 | 211 | 15 | 58 | 439 | 54 | 122 |
| | 40 | 131 | 33 | 36 | 212 | 13 | 58 | 441 | 56 | 122 |
| | 50 | 132 | 09 | 37 | 213 | 12 | 59 | 443 | 58 | 123 |
| 66 | 00 | 132 | 46 | 37 | 214 | 11 | 60 | 446 | 01 | 124 |
| | 10 | 133 | 23 | 37 | 215 | 11 | 60 | 448 | 05 | 125 |
| | 20 | 134 | 00 | 38 | 216 | 11 | 60 | 450 | 10 | 125 |
| | 30 | 134 | 38 | 38 | 217 | 11 | 61 | 452 | 15 | 126 |
| | 40 | 135 | 16 | 38 | 218 | 12 | 61 | 454 | 21 | 127 |
| | 50 | 135 | 54 | 38 | 219 | 13 | 61 | 456 | 28 | 129 |
| 67 | 00 | 136 | 32 | 38 | 220 | 14 | 62 | 458 | 37 | 129 |
| | 10 | 137 | 10 | 39 | 221 | 16 | 62 | 460 | 46 | 130 |
| | 20 | 137 | 49 | 39 | 222 | 18 | 63 | 462 | 56 | 131 |
| | 30 | 138 | 28 | 39 | 223 | 21 | 63 | 465 | 07 | 132 |
| | 40 | 139 | 07 | 39 | 224 | 24 | 64 | 467 | 19 | 133 |
| | 50 | 139 | 46 | 40 | 225 | 28 | 64 | 469 | 32 | 134 |
| 68 | 00 | 140 | 26 | 40 | 226 | 32 | 65 | 471 | 46 | 135 |
| | 10 | 141 | 06 | 41 | 227 | 37 | 65 | 474 | 01 | 136 |
| | 20 | 141 | 47 | 41 | 228 | 42 | 66 | 476 | 17 | 136 |
| | 30 | 142 | 28 | 41 | 229 | 48 | 66 | 478 | 33 | 138 |
| | 40 | 143 | 09 | 41 | 230 | 54 | 67 | 480 | 51 | 138 |
| | 50 | 143 | 50 | 41 | 332 | 01 | 67 | 483 | 09 | 139 |
| 69 | 00 | 144 | 31 | 42 | 233 | 08 | 68 | 485 | 28 | 141 |
| | 10 | 145 | 13 | 42 | 234 | 16 | 68 | 487 | 49 | 142 |
| | 20 | 145 | 55 | 43 | 235 | 24 | 68 | 490 | 11 | 143 |
| | 30 | 146 | 38 | 43 | 236 | 32 | 69 | 492 | 34 | 144 |
| | 40 | 147 | 21 | 43 | 237 | 41 | 70 | 494 | 58 | 145 |
| | 50 | 148 | 04 | 43 | 238 | 51 | 70 | 497 | 23 | 146 |
| 70 | 00 | 148 | 47 | 43 | 240 | 0 | 71 | 499 | 49 | 148 |

| Latit. | | First | | Second | | Third | | Fourth | |
|---|---|---|---|---|---|---|---|---|---|
| gr. | m. | Long. | diff | Long. | diff | Long | diff | Longit | di |
| 70 | 10 | 19 53 | 6 | 41 23 | 12 | 66 45 | 19 | 99 54 | 30 |
| | 20 | 19 59 | 5 | 41 35 | 13 | 67 05 | 20 | 100 24 | 30 |
| | 30 | 20 04 | 6 | 41 48 | 12 | 67 25 | 20 | 100 54 | 30 |
| | 40 | 20 10 | 6 | 42 00 | 13 | 67 45 | 20 | 101 24 | 30 |
| | 50 | 20 16 | 6 | 42 13 | 12 | 68 05 | 21 | 101 54 | 31 |
| 71 | 00 | 20 22 | 6 | 42 25 | 13 | 68 26 | 20 | 102 25 | 31 |
| | 10 | 20 28 | 6 | 42 48 | 13 | 68 46 | 21 | 102 56 | 31 |
| | 20 | 20 34 | 7 | 42 51 | 13 | 69 07 | 21 | 103 27 | 31 |
| | 30 | 20 41 | 6 | 43 04 | 13 | 69 28 | 21 | 103 58 | 32 |
| | 40 | 20 47 | 6 | 43 17 | 13 | 69 49 | 21 | 104 30 | 32 |
| | 50 | 20 53 | 7 | 43 30 | 14 | 70 10 | 22 | 105 02 | 32 |
| 72 | 00 | 21 00 | 6 | 43 44 | 13 | 70 32 | 22 | 105 34 | 32 |
| | 10 | 21 06 | 6 | 43 57 | 13 | 70 54 | 22 | 106 06 | 33 |
| | 20 | 21 12 | 7 | 44 10 | 14 | 71 16 | 22 | 106 39 | 33 |
| | 30 | 21 19 | 7 | 44 24 | 14 | 71 38 | 22 | 107 12 | 34 |
| | 40 | 21 26 | 7 | 44 38 | 14 | 72 00 | 23 | 107 46 | 34 |
| | 50 | 21 33 | 7 | 44 52 | 14 | 72 23 | 23 | 108 20 | 34 |
| 73 | 00 | 21 40 | 6 | 45 06 | 14 | 72 46 | 23 | 108 54 | 34 |
| | 10 | 21 46 | 7 | 45 20 | 14 | 73 09 | 23 | 109 28 | 35 |
| | 20 | 21 53 | 7 | 45 34 | 15 | 73 32 | 23 | 110 03 | 35 |
| | 30 | 22 00 | 7 | 45 49 | 15 | 73 55 | 24 | 110 38 | 35 |
| | 40 | 22 07 | 7 | 46 04 | 15 | 74 19 | 24 | 111 13 | 36 |
| | 50 | 22 14 | 7 | 46 19 | 15 | 74 43 | 24 | 111 49 | 36 |
| 74 | 00 | 22 21 | 8 | 46 34 | 15 | 75 07 | 25 | 112 25 | 36 |
| | 10 | 22 29 | 7 | 46 49 | 15 | 75 32 | 24 | 113 01 | 37 |
| | 20 | 22 36 | 8 | 47 04 | 16 | 75 56 | 25 | 113 38 | 38 |
| | 30 | 22 44 | 7 | 47 20 | 15 | 76 21 | 25 | 114 15 | 38 |
| | 40 | 22 51 | 8 | 47 35 | 16 | 76 46 | 25 | 114 53 | 38 |
| | 50 | 22 59 | 7 | 47 51 | 16 | 77 11 | 26 | 115 31 | 38 |
| 75 | 0 | 23 06 | 8 | 48 07 | 16 | 77 37 | 26 | 116 09 | 38 |

| Latit. | | Fift | | | Sixt | | | Seventh | | |
|---|---|---|---|---|---|---|---|---|---|---|
| gr. | mn. | Longit | | diff. | Longit | | diff. | Longit | | diff. |
| 70 | 10 | 149 | 31 | 44 | 241 | 12 | 72 | 502 | 17 | 149 |
| | 20 | 150 | 15 | 45 | 242 | 24 | 72 | 504 | 46 | 150 |
| | 30 | 151 | 00 | 45 | 243 | 36 | 73 | 507 | 16 | 151 |
| | 40 | 151 | 45 | 46 | 244 | 49 | 73 | 509 | 47 | 152 |
| | 50 | 152 | 31 | 46 | 246 | 02 | 74 | 512 | 19 | 154 |
| 71 | 00 | 153 | 17 | 46 | 247 | 16 | 74 | 514 | 53 | 155 |
| | 10 | 154 | 03 | 46 | 248 | 30 | 75 | 517 | 28 | 156 |
| | 20 | 154 | 49 | 47 | 249 | 45 | 76 | 520 | 04 | 158 |
| | 30 | 155 | 36 | 48 | 251 | 01 | 76 | 522 | 42 | 159 |
| | 40 | 156 | 24 | 48 | 252 | 17 | 77 | 525 | 21 | 161 |
| | 50 | 157 | 12 | 48 | 253 | 34 | 78 | 528 | 02 | 162 |
| 72 | 00 | 158 | 00 | 49 | 254 | 52 | 78 | 530 | 44 | 163 |
| | 10 | 158 | 49 | 49 | 256 | 10 | 79 | 533 | 27 | 165 |
| | 20 | 159 | 38 | 49 | 257 | 29 | 80 | 536 | 12 | 166 |
| | 30 | 160 | 27 | 50 | 258 | 49 | 81 | 538 | 58 | 168 |
| | 40 | 161 | 17 | 50 | 260 | 10 | 82 | 541 | 46 | 170 |
| | 50 | 162 | 07 | 51 | 261 | 32 | 82 | 544 | 36 | 171 |
| 73 | 00 | 162 | 58 | 51 | 262 | 54 | 83 | 547 | 27 | 173 |
| | 10 | 163 | 49 | 52 | 264 | 17 | 84 | 550 | 20 | 174 |
| | 20 | 164 | 41 | 53 | 265 | 41 | 84 | 553 | 14 | 176 |
| | 30 | 165 | 34 | 53 | 267 | 05 | 85 | 556 | 10 | 178 |
| | 40 | 166 | 27 | 54 | 268 | 35 | 86 | 559 | 08 | 180 |
| | 50 | 167 | 21 | 54 | 269 | 56 | 87 | 562 | 08 | 181 |
| 74 | 00 | 168 | 15 | 55 | 271 | 22 | 88 | 565 | 09 | 183 |
| | 10 | 169 | 10 | 55 | 272 | 51 | 89 | 568 | 12 | 185 |
| | 20 | 169 | 5[illegible] | 55 | 274 | 20 | 90 | 571 | 17 | 187 |
| | 30 | 171 | 00 | 56 | 275 | 50 | 91 | 574 | 24 | 189 |
| | 40 | 171 | 56 | 57 | 277 | 21 | 92 | 577 | 33 | 191 |
| | 50 | 172 | 53 | 57 | 278 | 53 | 93 | 580 | 4[illegible] | 194 |
| 75 | 00 | 173 | 50 | 58 | 280 | 26 | 94 | 583 | 58 | 196 |

| Days | Janua. South | | Februa South | | Mar. South | | April North | | May North | | June North | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 44 | 13 | 46 | 3 | 24 | 08 | 36 | 18 | 05 | 23 | 12 |
| 2 | 21 | 34 | 13 | 26 | 3 | 00 | 08 | 58 | 18 | 20 | 23 | 16 |
| 3 | 21 | 23 | 13 | 05 | 2 | 37 | 09 | 20 | 18 | 35 | 23 | 19 |
| 4 | 21 | 13 | 12 | 45 | 2 | 13 | 09 | 40 | 18 | 50 | 23 | 22 |
| 5 | 21 | 02 | 12 | 25 | 1 | 49 | 10 | 03 | 19 | 04 | 23 | 25 |
| 6 | 20 | 50 | 12 | 04 | 1 | 25 | 10 | 24 | 19 | 18 | 23 | 27 |
| 7 | 20 | 38 | 11 | 43 | 1 | 01 | 10 | 45 | 19 | 31 | 23 | 29 |
| 8 | 20 | 26 | 11 | 21 | 0 | 38 | 11 | 06 | 19 | 44 | 23 | 30 |
| 9 | 20 | 13 | 11 | 00 | 0 | 14 | 11 | 27 | 19 | 57 | 23 | 31 |
| 10 | 20 | 00 | 10 | 38 | 0N | 10 | 11 | 47 | 20 | 10 | 23 | 31 |
| 11 | 19 | 46 | 10 | 16 | 0 | 33 | 12 | 07 | 20 | 22 | 23 | 32 |
| 12 | 19 | 32 | 09 | 54 | 0 | 57 | 12 | 28 | 20 | 34 | 23 | 31 |
| 13 | 19 | 18 | 09 | 32 | 1 | 21 | 12 | 48 | 20 | 54 | 23 | 30 |
| 14 | 19 | 03 | 09 | 10 | 1 | 44 | 13 | 07 | 20 | 56 | 23 | 29 |
| 15 | 18 | 48 | 08 | 48 | 2 | 08 | 13 | 27 | 21 | 07 | 23 | 28 |
| 16 | 18 | 33 | 08 | 25 | 2 | 31 | 13 | 46 | 21 | 17 | 23 | 26 |
| 17 | 18 | 17 | 08 | 03 | 2 | 54 | 14 | 05 | 21 | 27 | 23 | 23 |
| 18 | 18 | 02 | 07 | 40 | 3 | 18 | 14 | 24 | 21 | 37 | 23 | 20 |
| 19 | 17 | 45 | 07 | 17 | 3 | 41 | 14 | 42 | 21 | 46 | 23 | 17 |
| 20 | 17 | 28 | 06 | 54 | 4 | 05 | 15 | 01 | 21 | 55 | 23 | 14 |
| 21 | 17 | 11 | 06 | 31 | 4 | 28 | 15 | 19 | 22 | 04 | 23 | 10 |
| 22 | 16 | 54 | 06 | 08 | 4 | 51 | 15 | 37 | 22 | 12 | 23 | 06 |
| 23 | 16 | 36 | 05 | 45 | 5 | 14 | 15 | 54 | 22 | 20 | 23 | 01 |
| 24 | 16 | 18 | 05 | 21 | 5 | 37 | 16 | 12 | 22 | 27 | 22 | 55 |
| 25 | 16 | 00 | 04 | 58 | 6 | 00 | 16 | 29 | 22 | 34 | 22 | 50 |
| 26 | 15 | 42 | 04 | 34 | 6 | 22 | 16 | 46 | 22 | 41 | 22 | 44 |
| 27 | 15 | 23 | 04 | 11 | 6 | 45 | 17 | 02 | 22 | 47 | 22 | 37 |
| 28 | 14 | 04 | 03 | 47 | 7 | 07 | 17 | 18 | 22 | 53 | 22 | 31 |
| 29 | 14 | 45 | | | 7 | 30 | 17 | 34 | 22 | 58 | 22 | 23 |
| 30 | 14 | 26 | | | 7 | 52 | 17 | 50 | 23 | 03 | 22 | 16 |
| 31 | 14 | 06 | | | 8 | 14 | | | 23 | 08 | | |

Suns declination 1657, 1661, 1665, 1669.

| Dayes | July | | Augu. | | Septē. | | Octob. | | Novē. | | Decem. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | North | | North | | North | | South | | South | | South | |
| 1 | 22 | 08 | 15 | 12 | 4 | 24 | 07 | 15 | 17 | 40 | 23 | 09 |
| 2 | 22 | 00 | 14 | 54 | 4 | 01 | 07 | 38 | 17 | 56 | 23 | 13 |
| 3 | 21 | 51 | 14 | 36 | 3 | 38 | 08 | 00 | 18 | 12 | 23 | 17 |
| 4 | 21 | 42 | 14 | 17 | 3 | 15 | 08 | 22 | 18 | 28 | 23 | 20 |
| 5 | 21 | 32 | 13 | 58 | 2 | 52 | 08 | 45 | 18 | 43 | 22 | 23 |
| 6 | 21 | 22 | 13 | 39 | 2 | 29 | 09 | 07 | 18 | 58 | 23 | 26 |
| 7 | 21 | 12 | 13 | 20 | 2 | 05 | 09 | 29 | 19 | 13 | 23 | 28 |
| 8 | 21 | 02 | 13 | 01 | 1 | 42 | 09 | 51 | 19 | 27 | 23 | 30 |
| 9 | 20 | 51 | 12 | 41 | 1 | 19 | 10 | 13 | 19 | 41 | 23 | 31 |
| 10 | 20 | 40 | 12 | 21 | 0 | 55 | 10 | 35 | 19 | 55 | 23 | 31 |
| 11 | 20 | 48 | 12 | 01 | 0 | 32 | 10 | 56 | 20 | 08 | 23 | 32 |
| 12 | 20 | 16 | 11 | 41 | 0 | 08 | 11 | 18 | 20 | 21 | 23 | 31 |
| 13 | 20 | 04 | 11 | 21 | 0 | S 16 | 11 | 39 | 20 | 34 | 23 | 30 |
| 14 | 19 | 51 | 11 | 09 | 0 | 39 | 12 | 00 | 20 | 46 | 23 | 29 |
| 15 | 19 | 38 | 10 | 39 | 1 | 03 | 12 | 21 | 20 | 58 | 23 | 27 |
| 16 | 19 | 25 | 10 | 18 | 1 | 26 | 12 | 41 | 20 | 90 | 23 | 25 |
| 17 | 19 | 12 | 10 | 57 | 1 | 50 | 13 | 12 | 21 | 20 | 23 | 22 |
| 18 | 18 | 58 | 09 | 32 | 2 | 13 | 13 | 22 | 21 | 31 | 23 | 19 |
| 19 | 18 | 43 | 09 | 15 | 2 | 37 | 13 | 42 | 21 | 41 | 23 | 16 |
| 20 | 18 | 29 | 08 | 53 | 3 | 00 | 14 | 02 | 21 | 50 | 23 | 12 |
| 21 | 18 | 14 | 08 | 31 | 3 | 23 | 14 | 21 | 22 | 00 | 23 | 07 |
| 22 | 17 | 59 | 08 | 09 | 3 | 47 | 14 | 41 | 22 | 09 | 23 | 02 |
| 23 | 17 | 14 | 07 | 47 | 4 | 10 | 15 | 00 | 22 | 17 | 22 | 57 |
| 24 | 17 | 28 | 07 | 25 | 4 | 33 | 15 | 19 | 22 | 25 | 22 | 51 |
| 25 | 17 | 12 | 07 | 03 | 4 | 57 | 15 | 37 | 22 | 33 | 22 | 44 |
| 26 | 16 | 56 | 06 | 41 | 5 | 20 | 15 | 55 | 22 | 40 | 22 | 37 |
| 27 | 16 | 39 | 06 | 18 | 5 | 43 | 16 | 13 | 22 | 46 | 22 | 30 |
| 28 | 16 | 22 | 05 | 56 | 6 | 06 | 16 | 31 | 22 | 52 | 22 | 22 |
| 29 | 16 | 05 | 05 | 33 | 6 | 29 | 16 | 49 | 22 | 58 | 22 | 14 |
| 30 | 16 | 48 | 05 | 10 | 6 | 52 | 17 | 06 | 23 | 04 | 22 | 05 |
| 31 | 16 | 30 | 04 | 47 | | | 17 | 23 | | | 21 | 56 |

Suns declination 1658, 1662, 1666, 1670.

| Days | Januar. South | | Februar South | | Mar. South | | April North | | May North | | June North | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 47 | 13 | 51 | 3 | 29 | 08 | 31 | 18 | 02 | 23 | 11 |
| 2 | 21 | 37 | 13 | 31 | 3 | 06 | 08 | 53 | 18 | 17 | 23 | 15 |
| 3 | 21 | 27 | 13 | 10 | 2 | 42 | 09 | 15 | 18 | 32 | 23 | 18 |
| 4 | 21 | 16 | 12 | 50 | 2 | 18 | 09 | 36 | 18 | 46 | 23 | 21 |
| 5 | 21 | 05 | 12 | 30 | 1 | 55 | 09 | 58 | 19 | 00 | 23 | 24 |
| 6 | 20 | 53 | 12 | 09 | 1 | 31 | 10 | 19 | 19 | 14 | 23 | 26 |
| 7 | 20 | 41 | 11 | 48 | 1 | 07 | 10 | 40 | 9 | 28 | 23 | 28 |
| 8 | 20 | 29 | 11 | 26 | 0 | 43 | 11 | 01 | 19 | 41 | 23 | 30 |
| 9 | 20 | 16 | 11 | 05 | 0 | 20 | 11 | 22 | 19 | 54 | 23 | 31 |
| 10 | 20 | 03 | 10 | 43 | 0 | 04 | 11 | 42 | 20 | 07 | 23 | 31 |
| 11 | 19 | 49 | 10 | 22 | 0 | N28 | 12 | 03 | 20 | 19 | 23 | 31 |
| 12 | 19 | 35 | 09 | 50 | 0 | 51 | 12 | 23 | 20 | 31 | 23 | 31 |
| 13 | 19 | 21 | 09 | 38 | 1 | 15 | 12 | 43 | 20 | 42 | 23 | 31 |
| 14 | 19 | 07 | 09 | 15 | 1 | 39 | 13 | 03 | 20 | 53 | 23 | 30 |
| 15 | 18 | 52 | 08 | 53 | 2 | 02 | 13 | 22 | 21 | 04 | 23 | 28 |
| 16 | 18 | 37 | 08 | 31 | 2 | 25 | 13 | 41 | 21 | 15 | 23 | 26 |
| 17 | 18 | 21 | 08 | 08 | 2 | 49 | 14 | 00 | 21 | 25 | 23 | 24 |
| 18 | 18 | 05 | 07 | 45 | 3 | 12 | 14 | 19 | 21 | 35 | 23 | 21 |
| 19 | 17 | 49 | 07 | 22 | 3 | 36 | 14 | 38 | 21 | 44 | 23 | 18 |
| 20 | 17 | 32 | 06 | 59 | 3 | 59 | 14 | 56 | 21 | 53 | 23 | 15 |
| 21 | 17 | 15 | 06 | 36 | 4 | 22 | 15 | 14 | 22 | 02 | 23 | 11 |
| 22 | 16 | 58 | 06 | 13 | 4 | 45 | 15 | 32 | 22 | 10 | 23 | 06 |
| 23 | 16 | 41 | 05 | 50 | 5 | 08 | 15 | 50 | 22 | 18 | 23 | 02 |
| 24 | 16 | 23 | 05 | 27 | 5 | 31 | 16 | 08 | 22 | 25 | 22 | 57 |
| 25 | 16 | 05 | 05 | 04 | 5 | 54 | 16 | 25 | 22 | 32 | 22 | 51 |
| 26 | 15 | 47 | 04 | 40 | 6 | 17 | 16 | 42 | 22 | 39 | 22 | 45 |
| 27 | 15 | 28 | 04 | 17 | 6 | 40 | 16 | 58 | 22 | 45 | 22 | 39 |
| 28 | 15 | 09 | 03 | 53 | 7 | 02 | 17 | 14 | 22 | 51 | 22 | 32 |
| 29 | 14 | 50 | | | 7 | 25 | 17 | 30 | 22 | 57 | 22 | 25 |
| 30 | 14 | 31 | | | 7 | 47 | 17 | 46 | 23 | 02 | 22 | 18 |
| 31 | 14 | 11 | | | 8 | 09 | | | 23 | 07 | | |

| Dayes | July | | Augu. | | Septē. | | Octob. | | Novē. | | Decem. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | North | | North | | North | | South | | South | | South | |
| 1 | 22 | 10 | 15 | 17 | 4 | 30 | 07 | 09 | 17 | 36 | 23 | 08 |
| 2 | 22 | 02 | 14 | 59 | 4 | 07 | 07 | 32 | 17 | 52 | 23 | 12 |
| 3 | 21 | 53 | 14 | 40 | 3 | 44 | 07 | 55 | 18 | 08 | 23 | 16 |
| 4 | 21 | 44 | 14 | 22 | 3 | 21 | 08 | 17 | 18 | 24 | 23 | 20 |
| 5 | 21 | 35 | 14 | 03 | 2 | 58 | 08 | 39 | 18 | 40 | 22 | 23 |
| 6 | 21 | 25 | 13 | 44 | 2 | 34 | 09 | 02 | 18 | 55 | 23 | 26 |
| 7 | 21 | 13 | 13 | 25 | 2 | 11 | 09 | 24 | 19 | 09 | 23 | 28 |
| 8 | 21 | 04 | 13 | 05 | 1 | 48 | 09 | 46 | 19 | 24 | 23 | 29 |
| 9 | 20 | 54 | 12 | 46 | 1 | 24 | 10 | 08 | 19 | 38 | 23 | 30 |
| 10 | 20 | 43 | 12 | 26 | 1 | 01 | 10 | 29 | 19 | 52 | 23 | 31 |
| 11 | 20 | 31 | 12 | 06 | 0 | 37 | 10 | 51 | 20 | 05 | 23 | 32 |
| 12 | 20 | 19 | 11 | 46 | 0 | 14 | 11 | 12 | 20 | 18 | 23 | 31 |
| 13 | 20 | 07 | 11 | 26 | 0 | S 10 | 11 | 34 | 20 | 31 | 23 | 31 |
| 14 | 19 | 54 | 11 | 05 | 0 | 33 | 11 | 55 | 20 | 43 | 23 | 29 |
| 15 | 19 | 41 | 10 | 44 | 0 | 57 | 12 | 15 | 20 | 55 | 23 | 28 |
| 16 | 19 | 28 | 10 | 23 | 1 | 20 | 12 | 36 | 21 | 06 | 23 | 26 |
| 17 | 19 | 15 | 10 | 02 | 1 | 44 | 12 | 57 | 21 | 17 | 23 | 23 |
| 18 | 19 | 01 | 09 | 41 | 2 | 07 | 13 | 17 | 21 | 28 | 23 | 20 |
| 19 | 18 | 47 | 09 | 20 | 2 | 31 | 13 | 37 | 21 | 38 | 23 | 17 |
| 20 | 18 | 33 | 08 | 58 | 2 | 54 | 13 | 57 | 21 | 48 | 23 | 13 |
| 21 | 18 | 18 | 08 | 36 | 3 | 18 | 14 | 16 | 21 | 57 | 23 | 08 |
| 22 | 18 | 03 | 08 | 15 | 3 | 41 | 14 | 36 | 22 | 06 | 23 | 03 |
| 23 | 17 | 47 | 07 | 53 | 4 | 04 | 14 | 55 | 22 | 15 | 22 | 58 |
| 24 | 17 | 32 | 07 | 31 | 4 | 28 | 15 | 14 | 22 | 23 | 22 | 52 |
| 25 | 17 | 16 | 07 | 09 | 4 | 51 | 15 | 33 | 22 | 31 | 22 | 46 |
| 26 | 17 | 00 | 06 | 46 | 5 | 14 | 15 | 51 | 22 | 38 | 22 | 39 |
| 27 | 16 | 43 | 06 | 24 | 5 | 38 | 16 | 09 | 22 | 45 | 22 | 32 |
| 28 | 16 | 26 | 06 | 01 | 6 | 00 | 16 | 27 | 22 | 51 | 22 | 24 |
| 29 | 16 | 09 | 05 | 38 | 6 | 23 | 16 | 45 | 22 | 57 | 22 | 16 |
| 30 | 16 | 52 | 05 | 16 | 6 | 46 | 17 | 02 | 22 | 03 | 22 | 07 |
| 31 | 16 | 34 | 04 | 53 | | | 17 | 19 | | | 21 | 58 |

| Days | Januar. South | | Febru. South | | Mar. South | | April North | | May North | | June North | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 49 | 13 | 56 | 3 | 35 | 08 | 26 | 17 | 57 | 23 | 1 |
| 2 | 21 | 39 | 13 | 36 | 3 | 11 | 08 | 48 | 18 | 13 | 23 | 1 |
| 3 | 21 | 29 | 13 | 16 | 2 | 48 | 09 | 09 | 18 | 28 | 23 | 1 |
| 4 | 21 | 18 | 12 | 55 | 2 | 24 | 09 | 31 | 18 | 43 | 23 | 2 |
| 5 | 21 | 07 | 12 | 35 | 2 | 00 | 09 | 53 | 18 | 57 | 23 | 2 |
| 6 | 20 | 56 | 12 | 14 | 1 | 37 | 10 | 14 | 19 | 11 | 23 | 2 |
| 7 | 20 | 44 | 11 | 53 | 1 | 13 | 10 | 35 | 19 | 25 | 23 | 2 |
| 8 | 20 | 32 | 11 | 32 | 0 | 49 | 10 | 56 | 19 | 38 | 23 | 2 |
| 9 | 20 | 19 | 11 | 10 | 0 | 26 | 11 | 17 | 19 | 51 | 23 | 3 |
| 10 | 20 | 06 | 10 | 49 | 0 | N02 | 11 | 37 | 20 | 04 | 23 | 3 |
| 11 | 19 | 53 | 10 | 27 | 0 | 22 | 11 | 58 | 20 | 16 | 23 | 3 |
| 12 | 19 | 39 | 10 | 05 | 0 | 46 | 12 | 18 | 20 | 28 | 23 | 3 |
| 13 | 19 | 25 | 09 | 43 | 1 | 09 | 12 | 38 | 20 | 40 | 23 | 3 |
| 14 | 19 | 10 | 09 | 21 | 1 | 33 | 12 | 58 | 20 | 51 | 23 | 3 |
| 15 | 18 | 55 | 08 | 58 | 1 | 56 | 13 | 17 | 21 | 02 | 23 | 2 |
| 16 | 18 | 40 | 08 | 36 | 2 | 30 | 13 | 37 | 21 | 12 | 23 | 2 |
| 17 | 18 | 25 | 08 | 14 | 2 | 43 | 13 | 56 | 21 | 23 | 23 | 2 |
| 18 | 18 | 09 | 07 | 51 | 3 | 07 | 14 | 15 | 21 | 33 | 23 | 2 |
| 19 | 17 | 53 | 07 | 28 | 3 | 30 | 14 | 34 | 21 | 42 | 23 | 1 |
| 20 | 17 | 36 | 07 | 05 | 3 | 53 | 14 | 52 | 21 | 51 | 23 | 1 |
| 21 | 17 | 19 | 06 | 42 | 4 | 17 | 15 | 10 | 22 | 00 | 23 | 1 |
| 22 | 17 | 02 | 06 | 19 | 4 | 40 | 15 | 28 | 22 | 08 | 23 | 0 |
| 23 | 16 | 45 | 05 | 56 | 5 | 03 | 15 | 46 | 22 | 16 | 23 | 0 |
| 24 | 16 | 27 | 05 | 32 | 5 | 26 | 16 | 03 | 22 | 24 | 22 | 5 |
| 25 | 16 | 09 | 05 | 09 | 5 | 49 | 16 | 21 | 22 | 31 | 22 | 5 |
| 26 | 15 | 51 | 04 | 46 | 6 | 12 | 16 | 38 | 22 | 38 | 22 | 4 |
| 27 | 15 | 32 | 04 | 22 | 6 | 34 | 16 | 54 | 22 | 44 | 22 | 4 |
| 28 | 15 | 14 | 03 | 59 | 6 | 57 | 16 | 11 | 22 | 50 | 22 | 3 |
| 29 | 14 | 55 | | | 7 | 19 | 17 | 27 | 22 | 56 | 22 | 2 |
| 30 | 14 | 35 | | | 7 | 42 | 17 | 43 | 23 | 01 | 22 | 2 |
| 31 | 14 | 16 | | | 8 | 04 | | | 23 | 06 | - | |

| Days | Julij | | Augu. | | Septe. | | Octob. | | Novt. | | Decem | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | North | | North | | North | | South | | South | | South | |
| 1 | 22 | 12 | 15 | 21 | 4 | 35 | 07 | 04 | 17 | 32 | 23 | 06 |
| 2 | 22 | 04 | 15 | 03 | 4 | 12 | 07 | 26 | 17 | 48 | 23 | 11 |
| 3 | 21 | 55 | 14 | 45 | 4 | 49 | 07 | 49 | 18 | 04 | 23 | 15 |
| 4 | 21 | 46 | 14 | 26 | 3 | 26 | 08 | 12 | 18 | 20 | 23 | 19 |
| 5 | 21 | 37 | 14 | 08 | 3 | 03 | 08 | 34 | 18 | 36 | 23 | 22 |
| 6 | 21 | 27 | 13 | 49 | 2 | 40 | 08 | 56 | 18 | 51 | 23 | 25 |
| 7 | 21 | 17 | 13 | 30 | 2 | 17 | 09 | 18 | 16 | 06 | 23 | 27 |
| 8 | 21 | 07 | 13 | 10 | 1 | 53 | 09 | 40 | 19 | 20 | 23 | 29 |
| 9 | 20 | 56 | 12 | 51 | 1 | 30 | 10 | 02 | 19 | 34 | 23 | 30 |
| 10 | 20 | 45 | 12 | 31 | 1 | 06 | 10 | 24 | 19 | 48 | 23 | 31 |
| 11 | 20 | 34 | 12 | 11 | 0 | 43 | 10 | 46 | 20 | 02 | 23 | 31 |
| 12 | 20 | 22 | 11 | 51 | 0 | 20 | 11 | 07 | 20 | 16 | 23 | 31 |
| 13 | 20 | 10 | 11 | 31 | 0 | S 04 | 11 | 28 | 20 | 28 | 23 | 31 |
| 14 | 19 | 57 | 11 | 10 | 0 | 28 | 11 | 49 | 20 | 40 | 23 | 30 |
| 15 | 19 | 45 | 10 | 49 | 0 | 51 | 12 | 10 | 20 | 52 | 23 | 28 |
| 16 | 19 | 32 | 10 | 39 | 1 | 15 | 12 | 31 | 21 | 04 | 23 | 26 |
| 17 | 19 | 18 | 10 | 07 | 1 | 38 | 12 | 52 | 21 | 15 | 23 | 24 |
| 18 | 19 | 04 | 09 | 46 | 2 | 02 | 13 | 12 | 21 | 25 | 23 | 21 |
| 19 | 18 | 50 | 09 | 25 | 2 | 25 | 13 | 32 | 21 | 36 | 23 | 17 |
| 20 | 18 | 36 | 09 | 04 | 2 | 48 | 13 | 52 | 21 | 46 | 23 | 13 |
| 21 | 18 | 21 | 08 | 42 | 3 | 12 | 14 | 12 | 21 | 55 | 23 | 09 |
| 22 | 18 | 06 | 08 | 20 | 3 | 36 | 14 | 31 | 22 | 04 | 23 | 04 |
| 23 | 17 | 51 | 07 | 58 | 3 | 59 | 14 | 50 | 22 | 13 | 22 | 59 |
| 24 | 17 | 35 | 07 | 36 | 4 | 22 | 15 | 09 | 22 | 21 | 22 | 53 |
| 15 | 17 | 19 | 07 | 14 | 4 | 46 | 15 | 28 | 22 | 29 | 22 | 47 |
| 26 | 17 | 03 | 06 | 51 | 5 | 09 | 15 | 46 | 22 | 36 | 22 | 41 |
| 27 | 16 | 47 | 06 | 29 | 5 | 32 | 16 | 05 | 22 | 42 | 22 | 34 |
| 28 | 16 | 30 | 06 | 07 | 5 | 55 | 16 | 23 | 22 | 50 | 22 | 26 |
| 29 | 16 | 13 | 05 | 44 | 6 | 18 | 16 | 41 | 22 | 56 | 22 | 18 |
| 30 | 15 | 56 | 05 | 22 | 6 | 41 | 16 | 58 | 23 | 01 | 22 | 10 |
| 31 | 15 | 39 | 05 | 59 | | | 71 | 15 | | | 22 | 11 |

| Days | Janua. South | | Februa South | | Mar. South | | April North | | May North | | June North | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 51 | 14 | 01 | 3 | 17 | 08 | 42 | 18 | 10 | 23 | 13 |
| 2 | 21 | 42 | 13 | 41 | 2 | 54 | 09 | 04 | 18 | 25 | 23 | 17 |
| 3 | 21 | 32 | 13 | 21 | 2 | 30 | 09 | 26 | 18 | 39 | 23 | 20 |
| 4 | 21 | 21 | 13 | 0 | 2 | 06 | 09 | 47 | 18 | 54 | 23 | 23 |
| 5 | 21 | 10 | 12 | 40 | 1 | 40 | 10 | 09 | 19 | 08 | 23 | 25 |
| 6 | 20 | 59 | 12 | 19 | 1 | 19 | 10 | 30 | 19 | 22 | 23 | 27 |
| 7 | 20 | 47 | 11 | 58 | 0 | 55 | 10 | 51 | 9 | 35 | 23 | 29 |
| 8 | 20 | 35 | 11 | 37 | 0 | 32 | 11 | 12 | 19 | 48 | 23 | 30 |
| 9 | 20 | 22 | 11 | 16 | 0 | 08 | 11 | 32 | 20 | 31 | 23 | 31 |
| 10 | 20 | 09 | 10 | 54 | 0N | 16 | 11 | 53 | 20 | 13 | 23 | 31 |
| 11 | 19 | 56 | 10 | 32 | 0 | 40 | 12 | 13 | 20 | 25 | 23 | 32 |
| 12 | 19 | 42 | 09 | 10 | 1 | 03 | 12 | 33 | 20 | 37 | 23 | 31 |
| 13 | 19 | 28 | 09 | 48 | 1 | 27 | 12 | 53 | 20 | 48 | 23 | 30 |
| 14 | 19 | 14 | 09 | 26 | 1 | 50 | 13 | 12 | 20 | 59 | 23 | 29 |
| 15 | 18 | 59 | 09 | 04 | 2 | 14 | 13 | 32 | 21 | 10 | 23 | 27 |
| 16 | 18 | 44 | 08 | 42 | 2 | 38 | 13 | 51 | 21 | 20 | 23 | 25 |
| 17 | 18 | 29 | 08 | 19 | 3 | 02 | 14 | 10 | 21 | 30 | 23 | 23 |
| 18 | 18 | 13 | 07 | 56 | 3 | 25 | 14 | 29 | 21 | 40 | 23 | 20 |
| 19 | 17 | 57 | 07 | 33 | 3 | 48 | 14 | 48 | 21 | 49 | 23 | 16 |
| 20 | 17 | 40 | 07 | 10 | 4 | 11 | 15 | 06 | 21 | 58 | 23 | 13 |
| 21 | 17 | 24 | 06 | 47 | 4 | 34 | 15 | 24 | 22 | 06 | 23 | 09 |
| 22 | 17 | 07 | 06 | 24 | 4 | 57 | 15 | 42 | 22 | 13 | 23 | 04 |
| 23 | 16 | 49 | 06 | 01 | 5 | 20 | 15 | 59 | 22 | 22 | 23 | 59 |
| 24 | 16 | 32 | 05 | 38 | 5 | 42 | 16 | 17 | 22 | 29 | 22 | 54 |
| 25 | 16 | 14 | 05 | 15 | 6 | 06 | 16 | 34 | 22 | 36 | 22 | 48 |
| 26 | 15 | 55 | 04 | 52 | 6 | 29 | 16 | 56 | 22 | 43 | 22 | 42 |
| 27 | 15 | 37 | 04 | 29 | 6 | 51 | 17 | 07 | 22 | 49 | 22 | 36 |
| 28 | 15 | 18 | 04 | 04 | 7 | 14 | 17 | 22 | 22 | 54 | 22 | 29 |
| 29 | 14 | 59 | 03 | 41 | 7 | 36 | 17 | 30 | 22 | 59 | 22 | 21 |
| 30 | 14 | 40 | | | 7 | 58 | 17 | 5 | 23 | 04 | 22 | 13 |
| 31 | 14 | 21 | | | 8 | 20 | | | 23 | 06 | | |

| Days | July | | Augu. | | Septe. | | Octob. | | Nove. | | Decem. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | North | | North | | North | | South | | South | | South | |
| 1 | 22 | 05 | 15 | 07 | 4 | 18 | 07 | 21 | 17 | 44 | 23 | 10 |
| 2 | 21 | 57 | 14 | 49 | 3 | 55 | 07 | 44 | 18 | 00 | 23 | 14 |
| 3 | 21 | 48 | 14 | 31 | 3 | 32 | 08 | 06 | 18 | 16 | 23 | 18 |
| 4 | 21 | 39 | 14 | 12 | 3 | 09 | 08 | 29 | 18 | 32 | 23 | 21 |
| 5 | 21 | 30 | 13 | 53 | 2 | 45 | 08 | 51 | 18 | 47 | 23 | 24 |
| 6 | 21 | 20 | 13 | 34 | 2 | 22 | 09 | 13 | 19 | 02 | 23 | 27 |
| 7 | 21 | 10 | 13 | 15 | 1 | 59 | 09 | 35 | 19 | 17 | 23 | 25 |
| 8 | 20 | 59 | 12 | 55 | 1 | 35 | 09 | 57 | 19 | 31 | 23 | 30 |
| 9 | 20 | 48 | 12 | 36 | 1 | 12 | 10 | 19 | 19 | 45 | 23 | 31 |
| 10 | 20 | 37 | 12 | 16 | 0 | 49 | 10 | 41 | 19 | 59 | 23 | 31 |
| 11 | 20 | 25 | 11 | 56 | 0 | S 25 | 11 | 02 | 20 | 12 | 23 | 32 |
| 12 | 20 | 13 | 11 | 36 | 0 | 02 | 11 | 23 | 20 | 25 | 23 | 31 |
| 13 | 20 | 00 | 11 | 15 | 0 | 22 | 11 | 44 | 20 | 37 | 23 | 30 |
| 14 | 19 | 48 | 10 | 54 | 0 | 45 | 12 | 05 | 20 | 49 | 23 | 29 |
| 15 | 19 | 35 | 10 | 34 | 1 | 09 | 12 | 26 | 21 | 01 | 23 | 27 |
| 16 | 19 | 21 | 10 | 13 | 1 | 33 | 12 | 47 | 21 | 12 | 23 | 24 |
| 17 | 19 | 08 | 09 | 51 | 1 | 56 | 13 | 07 | 21 | 23 | 23 | 21 |
| 18 | 18 | 54 | 09 | 30 | 2 | 19 | 13 | 27 | 21 | 33 | 23 | 18 |
| 19 | 18 | 39 | 09 | 09 | 2 | 43 | 13 | 47 | 21 | 43 | 23 | 15 |
| 20 | 18 | 25 | 08 | 47 | 3 | 06 | 14 | 07 | 21 | 53 | 23 | 11 |
| 21 | 18 | 10 | 08 | 25 | 3 | 30 | 14 | 26 | 22 | 02 | 23 | 06 |
| 22 | 17 | 55 | 08 | 03 | 3 | 53 | 14 | 46 | 22 | 11 | 23 | 01 |
| 23 | 17 | 40 | 07 | 41 | 4 | 17 | 15 | 05 | 22 | 19 | 22 | 55 |
| 24 | 17 | 24 | 07 | 19 | 4 | 40 | 15 | 24 | 22 | 27 | 22 | 49 |
| 25 | 17 | 07 | 06 | 57 | 5 | 03 | 15 | 42 | 22 | 35 | 22 | 42 |
| 26 | 16 | 51 | 06 | 35 | 5 | 26 | 16 | 00 | 22 | 42 | 22 | 35 |
| 27 | 16 | 34 | 06 | 12 | 5 | 49 | 16 | 18 | 22 | 48 | 22 | 28 |
| 28 | 16 | 17 | 05 | 50 | 6 | 12 | 16 | 36 | 22 | 54 | 22 | 20 |
| 29 | 16 | 00 | 05 | 27 | 6 | 35 | 16 | 54 | 23 | 00 | 22 | 12 |
| 30 | 15 | 43 | 05 | 05 | 6 | 58 | 17 | 11 | 23 | 05 | 22 | 03 |
| 31 | 15 | 25 | 04 | 41 | | | 17 | 28 | | | 21 | 54 |

## Sun's Right Ascension in Hours and Minutes

| Days | Janua. | | Febru. | | Mar. | | April | | May | | June | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H | M | H | M | H | M | H | M | H | M | H | M |
| 1 | 19 | 32 | 21 | 41 | 23 | 27 | 1 | 20 | 3 | 13 | 5 | 18 |
| 2 | 19 | 37 | 21 | 45 | 23 | 31 | 1 | 23 | 3 | 17 | 5 | 22 |
| 3 | 19 | 41 | 21 | 49 | 23 | 34 | 1 | 27 | 3 | 21 | 5 | 26 |
| 4 | 19 | 45 | 21 | 53 | 23 | 38 | 1 | 31 | 3 | 24 | 5 | 30 |
| 5 | 19 | 50 | 21 | 57 | 23 | 42 | 1 | 34 | 3 | 28 | 5 | 34 |
| 6 | 19 | 54 | 22 | 00 | 23 | 45 | 1 | 38 | 3 | 32 | 5 | 38 |
| 7 | 19 | 58 | 22 | 04 | 23 | 49 | 1 | 42 | 3 | 36 | 5 | 43 |
| 8 | 20 | 03 | 22 | 08 | 23 | 52 | 1 | 45 | 3 | 40 | 5 | 47 |
| 9 | 20 | 07 | 22 | 12 | 33 | 56 | 1 | 49 | 3 | 44 | 5 | 51 |
| 10 | 20 | 11 | 22 | 16 | 00 | 00 | 1 | 53 | 3 | 48 | 5 | 55 |
| 11 | 20 | 15 | 22 | 20 | 0 | 03 | 1 | 57 | 3 | 52 | 5 | 59 |
| 12 | 20 | 20 | 22 | 24 | 0 | 07 | 2 | 00 | 3 | 56 | 6 | 03 |
| 13 | 20 | 24 | 22 | 27 | 0 | 11 | 2 | 04 | 4 | 00 | 6 | 08 |
| 14 | 20 | 28 | 22 | 31 | 0 | 14 | 2 | 08 | 4 | 04 | 6 | 12 |
| 15 | 20 | 32 | 22 | 35 | 0 | 18 | 2 | 11 | 4 | 08 | 6 | 16 |
| 16 | 20 | 36 | 22 | 39 | 0 | 21 | 2 | 15 | 4 | 12 | 6 | 20 |
| 17 | 20 | 40 | 22 | 42 | 0 | 25 | 2 | 19 | 4 | 16 | 6 | 24 |
| 18 | 20 | 45 | 22 | 46 | 0 | 29 | 2 | 23 | 4 | 20 | 6 | 28 |
| 19 | 20 | 49 | 22 | 50 | 0 | 32 | 2 | 27 | 4 | 24 | 6 | 32 |
| 20 | 20 | 53 | 22 | 54 | 0 | 36 | 2 | 30 | 4 | 28 | 6 | 37 |
| 21 | 20 | 57 | 22 | 57 | 0 | 40 | 2 | 34 | 4 | 33 | 6 | 41 |
| 22 | 21 | 01 | 23 | 01 | 0 | 43 | 2 | 38 | 4 | 37 | 6 | 45 |
| 23 | 21 | 05 | 23 | 05 | 0 | 47 | 2 | 42 | 4 | 41 | 6 | 49 |
| 24 | 21 | 09 | 23 | 08 | 0 | 50 | 2 | 46 | 4 | 45 | 6 | 53 |
| 25 | 21 | 13 | 23 | 12 | 0 | 54 | 2 | 49 | 4 | 49 | 6 | 57 |
| 26 | 21 | 17 | 23 | 16 | 0 | 58 | 2 | 53 | 4 | 53 | 7 | 1 |
| 27 | 21 | 21 | 23 | 20 | 1 | 01 | 2 | 57 | 4 | 57 | 7 | 06 |
| 28 | 21 | 25 | 23 | 23 | 1 | 05 | 3 | 01 | 5 | 01 | 7 | 10 |
| 29 | 21 | 29 | | | 1 | 09 | 3 | 05 | 5 | 05 | 7 | 14 |
| 30 | 21 | 33 | | | 1 | 12 | 3 | 09 | 5 | 10 | 7 | 18 |
| 31 | 22 | 37 | | | 1 | 16 | | | 5 | 14 | | |

| Days | July | | Augu. | | Septem | | Octob. | | Novē. | | Decem | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H | M | H | M | H | M | H | M | H | M | H | M |
| 1 | 07 | 22 | 09 | 24 | 11 | 18 | 13 | 06 | 15 | 06 | 17 | 14 |
| 2 | 07 | 26 | 09 | 28 | 11 | 21 | 13 | 10 | 15 | 16 | 17 | 19 |
| 3 | 07 | 30 | 09 | 31 | 11 | 25 | 13 | 14 | 15 | 14 | 17 | 23 |
| 4 | 07 | 34 | 09 | 35 | 11 | 29 | 13 | 17 | 15 | 18 | 17 | 27 |
| 5 | 07 | 38 | 09 | 39 | 11 | 32 | 13 | 21 | 15 | 23 | 17 | 32 |
| 6 | 07 | 42 | 09 | 43 | 11 | 36 | 13 | 25 | 15 | 27 | 17 | 36 |
| 7 | 07 | 46 | 09 | 46 | 11 | 39 | 13 | 29 | 15 | 31 | 17 | 41 |
| 8 | 07 | 50 | 09 | 50 | 11 | 43 | 13 | 32 | 15 | 35 | 17 | 45 |
| 9 | 07 | 54 | 09 | 54 | 11 | 47 | 13 | 36 | 15 | 39 | 17 | 50 |
| 10 | 07 | 58 | 09 | 58 | 11 | 50 | 13 | 40 | 15 | 43 | 17 | 54 |
| 11 | 08 | 02 | 10 | 01 | 11 | 54 | 13 | 44 | 15 | 48 | 17 | 59 |
| 12 | 08 | 06 | 10 | 05 | 11 | 57 | 13 | 48 | 15 | 52 | 18 | 03 |
| 13 | 08 | 10 | 10 | 09 | 12 | 01 | 13 | 51 | 15 | 56 | 18 | 07 |
| 14 | 08 | 14 | 10 | 12 | 12 | 04 | 13 | 55 | 16 | 00 | 18 | 12 |
| 15 | 08 | 18 | 10 | 16 | 12 | 08 | 13 | 59 | 16 | 05 | 18 | 16 |
| 16 | 08 | 22 | 10 | 20 | 12 | 12 | 14 | 03 | 16 | 09 | 18 | 21 |
| 17 | 08 | 26 | 10 | 23 | 12 | 15 | 14 | 07 | 16 | 13 | 18 | 25 |
| 18 | 08 | 30 | 10 | 27 | 12 | 19 | 14 | 11 | 16 | 17 | 18 | 30 |
| 19 | 08 | 34 | 10 | 31 | 12 | 23 | 14 | 14 | 16 | 22 | 18 | 34 |
| 20 | 08 | 38 | 10 | 34 | 12 | 26 | 14 | 18 | 16 | 26 | 18 | 9 |
| 21 | 08 | 42 | 10 | 38 | 12 | 30 | 14 | 22 | 16 | 30 | 18 | 43 |
| 22 | 08 | 46 | 10 | 42 | 12 | 33 | 14 | 26 | 16 | 35 | 18 | 48 |
| 23 | 08 | 49 | 10 | 45 | 12 | 37 | 14 | 30 | 16 | 39 | 18 | 52 |
| 24 | 08 | 53 | 10 | 49 | 12 | 41 | 14 | 34 | 16 | 43 | 18 | 56 |
| 25 | 08 | 57 | 10 | 53 | 12 | 44 | 14 | 38 | 16 | 48 | 19 | 01 |
| 26 | 09 | 01 | 10 | 56 | 12 | 48 | 14 | 42 | 16 | 52 | 19 | 05 |
| 27 | 09 | 05 | 11 | 00 | 12 | 52 | 14 | 46 | 16 | 56 | 19 | 10 |
| 28 | 09 | 09 | 11 | 03 | 12 | 55 | 14 | 50 | 17 | 01 | 19 | 14 |
| 29 | 09 | 13 | 11 | 07 | 12 | 59 | 14 | 54 | 17 | 05 | 19 | 18 |
| 30 | 09 | 16 | 11 | 11 | 13 | 03 | 14 | 58 | 17 | 10 | 19 | 23 |
| 31 | 05 | 20 | 11 | 14 | | | 15 | 02 | | | 19 | 27 |

## The Declination and right Ascension of [illegible] Stars, calculated for 20 years yet to come.

| Names. | Right Ascens H | M | declination D | M | | distan. frō pol D | M |
|---|---|---|---|---|---|---|---|
| Buls eye | 4 | 10 | 15 | 48 | N | 74 | 12 |
| Arcturus | 14 | 01 | 20 | 58 | N | 69 | 2 |
| Lyra | 18 | 25 | 38 | 30 | N | 51 | 30 |
| Medusa's head *Algol* | 2 | 47 | 39 | 39 | N | 50 | 21 |
| The Goat *Capella* | 4 | 52 | 45 | 37 | N | 44 | 23 |
| Lions heart *Regulus* | 9 | 39 | 13 | 33 | N | 76 | 27 |
| Lions tale | 11 | 32 | 16 | 25 | N | 73 | 35 |
| Virgins Spike | 13 | 04 | 9 | 31 | S | 80 | 29 |
| Scorpions heart | 16 | 09 | 25 | 37 | S | 64 | 23 |
| Fomahant | 22 | 39 | 37 | 17 | S | 52 | 43 |
| Left foot of Orion | 04 | 59 | 08 | 37 | S | 81 | 23 |
| 1 in Orions Girdle | 05 | 03 | 00 | 35 | S | 89 | 25 |
| 2 in Orions Girdle | 05 | 19 | 01 | 26 | S | 88 | 34 |
| 3 in Orions Girdle | 05 | 24 | 02 | 09 | S | 87 | 51 |
| Great dog Sirius | 06 | 31 | 16 | 14 | S | 73 | 46 |
| Little dog Procyon | 07 | 22 | 06 | 0[illegible] | N | 83 | 57 |
| Hydra's heart | 09 | 11 | 07 | 15 | S | 82 | 45 |
| Brest of Cassiopea | 00 | 22 | 54 | 45 | N | 35 | 6 |
| Girdle of Andromeda | 00 | 51 | 33 | 55 | N | 56 | 25 |
| Whales belly | 01 | 35 | 11 | 54 | S | 78 | 6 |
| Hydras head | 08 | 21 | 4 | 30 | N | 85 | 30 |
| Pegasus mouth | 21 | 28 | 8 | 24 | N | 81 | 36 |
| Pegasus shoulder | 23 | 59 | 13 | 22 | N | 76 | 38 |
| Head of Andromeda | 23 | 39 | 27 | 18 | N | 62 | 4[illegible] |
| Perseus right side | [illegible] | 57 | 48 | 36 | N | 41 | 2[illegible] |
| In the Whales Chap | 02 | 45 | 2 | 48 | N | 87 | 1[illegible] |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Whales tale | 00 | 27 | 19 | [illegible] | S | [illegible] | 12 |
| Orions left shoulder | 05 | 4 | 6 | 1 | N | 83 | 59 |
| The forefoot of great dog | 06 | 08 | 17 | 49 | S | 72 | 15 |
| Pole-star | 00 | 31 | 87 | 33 | N | 2 | 27 |
| The uppermost in the square of the little Bear | 14 | 39 | 75 | 36 | N | 14 | 24 |
| Last in great Bears tale | 12 | 39 | 75 | 47 | N | 14 | 13 |
| Bright star of the Crown | 15 | 20 | 27 | 51 | N | 62 | 9 |
| Hercules left knee | 17 | 44 | 37 | 21 | N | 52 | 39 |
| Swans tail | 20 | 28 | 44 | 05 | N | 45 | 55 |
| Serpentinus head | 17 | 20 | 12 | 52 | N | 77 | 8 |
| Bright foot of the twins | 06 | 18 | 16 | 38 | N | 73 | 22 |
| Lions neck | 10 | 01 | 21 | 29 | N | 68 | 31 |
| South ballance | 14 | 32 | 14 | 37 | S | 75 | 23 |
| North ballance | 15 | 0 | 08 | 07 | S | 81 | 53 |

## *Questions of Navigation.*

*Question* 1. By the Rumb and distance of two places, to find the difference of latitude.

*As the Radius is*

*To the sine of the compl. of the rumb from the merid.*

*So is the distance,*

*To the difference of latitude.*

*Example.* If a ship sail West Northwest (that is upon the sixth rumb from the Meridian) the distance of 90 leagues: What shall be the difference of latitude?

First, I see in the Table foregoing that the angle which that rumb maketh with the meridian, is 67 deg. 30 min. the complement whereof is 22 deg. 30 min. whose sine is 38268. Therefore

*As* 100000 *is to* 38268

*So is* 90 *to* 34$\frac{44}{100}$ *leagues the difference of latitude*

or 34$\frac{44}{100}$ leag.

which being multiplyed by 5 [illegible]

103 min. that is 1 deg. 43 min.

This question may also be resolved by the first Table of Rumbs where I find in the column of the sixt Rumb that 80 leagues make 1 deg. 32 m. and 10 leagues make 11 min. for the difference of latitude, which is together 1 deg. 43 min. as before.

*Question* 2. By the rumb and latitude of two places to find the difference of longitude.

*As the Radius is*
*To the tangent of the Rumb from the meridian;*
*So is the proper difference of latitude,*
*To the difference of longitude.*

*Examp.* If a ship sail West North-west (that is upon the sixth rumb from the meridian) as far that from the latitude of [illegible] d. 32′ it cometh to the latitude of 49 d. 40′ what difference of longitude hath such a course made?

First, I seek in the Table of meridional parts, what degrees do there answer to each latitude, and to 51 deg. 32′ I find deg. 60330, and to 49 d. 40′ I find deg. 57620. This being subtracted from 60330 the remainder 2710 deg. is the proper difference of latitude. The tangent of the rumb 67 deg. 30 min. is 241421. Therefore

*As* 100000 *is to* 241421,
*So is* 271 *to* 654 *d. difference of longitudes.*

This may also be done by the second Table of rumbs, if you look for the longitude answering there to each latitude, and you shall find that in the column of the sixth rumb to 51 d. 32′ do answer 145 d. 39′ and to 49 deg. 40′ 139 d. 6′. This being subtracted from 145 d. 39′ the difference is 6 d. 33′ which was sought for.

*FINIS.*

| d. m. | Sine. | d. m. | Tang. | d. m. | Comp Arith. |
|---|---|---|---|---|---|
| 2. 5 | 054 | 88.32 | 370 | 1.52 | 713 |
| .44 | 840 | 3.37 | 076 | 85. 5 | 024 |
| .53 | 870 | 13.33 | 672 | 2.28 | 614 |
| 85.44 | 879 | 15. 6 | 107 | 3.52 | 117 |
| 4.45 | 891 | 16.10 | 224 | 5.52 | 049 |
| 14.39 | 297 | 73.48 | 681 | 6.19 | 851 |
| .53 | 968 | 17.11 | 028 | 14.56 | 889 |
| 74.52 | 467 | 18.26 | 285 | 16.34 | 405 |
| 15.29 | 644 | 70.20 | 685 | 17.26 | 346 |
| 16.27 | 206 | .18 | 605 | 18. 5 | 807 |
| 17.17 | 28 | 21. 4 | 562 | 71.54 | 204 |
| 18.24 | 920 | .24 | 317 | .38 | 270 |
| 71.19 | 648 | .38 | 835 | 19.16 | 153 |
| 70.11 | 348 | 22.13 | 111 | 69.47 | 761 |
| 20.41 | 802 | .14 | 142 | 68.50 | 033 |
| 21.17 | 955 | 23.21 | 963 | 25.19 | 894 |
| 68.27 | 852 | 65.35 | 297 | 63.46 | 720 |
| 21.41 | 758 | 25.46 | 367 | 28.44 | 809 |
| 67.36 | 592 | 62.47 | 878 | .45 | 786 |
| 66.52 | 359 | .19 | 013 | 59.51 | 312 |
| 23.48 | 589 | 27.43 | 047 | 55.44 | 279 |
| 24.26 | 661 | 61.31 | 553 | 34.20 | 671 |
| .27 | 689 | 29.56 | 027 | 55.22 | 470 |
| 25.50 | 924 | 58.28 | 102 | 35.10 | 961 |
| .55 | 054 | .29 | 102 | 53.36 | 426 |
| 27.56 | 065 | 56.44 | 306 | .35 | 435 |
| 28.16 | 538 | 55.40 | 557 | .30 | 482 |
| 30.33 | 970 | 36.35 | 052 | 38.31 | 569 |
| .34 | 970 | 37.19 | 987 | .36 | 489 |
| .35 | 970 | 43.27 | 649 | 50.25 | 311 |
| 57.01 | 367 | 45.39 | 985 | 48.00 | 892 |
| 54.00 | 795 | .15 | 276 | 42.36 | 949 |
| 38.57 | 840 | Nũ | Logar. | 47.13 | 434 |
| 39.59 | 791 | 408 | 066 | 46.26 | 013 |
| 42.37 | 064 | 449 | 224 | | |
| 44.29 | 553 | 631 | 280 | | |
| 45.08 | 059 | 666 | 347 | | |
| .07 | 036 | 998 | 913 | | |

*How to examine the truth of any Canon.*

IF to the fine of any degree and minute you adde its Complement Arithmetical, the ſumme ſhall be 999999, or rather 1000000. Alſo

If to the tangent of any degree and minute you adde its complement, the ſum ſhall be 1999999, or rather 2000000 but a unites difference in the laſt place is not at all material. By this examination theſe errours have been diſcovered.

In the third degree the columns of minutes are tranſpoſed, and,

From fine 30 deg. 30 min. to 30 deg. 60 min. for 96 read 97, &c.

13/5/20

sine Tan

As R — 60.00 — 38.30

tan^e tang^t of 35.5 w^ch taken

out of 125.30 is 90.25

and the

As cosine cosine

35.5 — 38.30 — 90.25

the cosine of 90.24

their distance